ANALYSIS OF REMEDIAL ALTERNATIVES

Bossert Site
Site Code: 6-33-029
Phase I
1002 Oswego Street
Utica, New York

New York State EQBA - Title 3 Project
City of Utica, New York
NYSDEC Region 6, Onieda County

December 1994

O'BRIEN & GERE
ENGINEERS, INC.

Analysis of Remedial Alternatives

Phase I
Bossert Site

Site Code: 6-33-029
New York State EQBA Title 3 Project
NYSDEC Region 6, Oneida County

City of Utica
New York
December 1994

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

Brien N. Gidlow, P.E.
Executive Vice President
& Chief Engineer

Contents

Executive summary iii

List of tables vi

List of figures vii

List of appendixes viii

List of acronyms ix

1. Introduction 1
- 1.1. Report scope and objective 1
- 1.2. Site background 2
- 1.3. Current site conditions affecting the selection of alternatives 4
- 1.4. Report format 4

2. Refinement of remedial objectives 6
- 2.1. Remedial objective 6
- 2.2. Identification of volumes and areas 6

3. Review of regulatory requirements 9
- 3.1. Summary of regulations 9
  - 3.1.1. General 10
  - 3.1.2. Regulations covering PCBs and mercury 13
  - 3.1.3. Regulations covering the removal of ACM 18
  - 3.1.4. Regulations covering solid waste transportation and disposal 20
  - 3.1.5. Disposal facilities 20
  - 3.1.6. Water treatment requirements 20
  - 3.1.7. Air quality requirements 21
  - 3.1.8. Recycling 21

4. Identification and preliminary screening of remedial alternatives 22
4.1. No action 23
4.2. Selected building demolition 23
4.3. PCB contaminated metal stamping presses 25
4.4. PCB contaminated debris 26
4.5. Grease lines 30
4.6. Mercury contaminated waste 30
4.7. Asbestos containing material 31
4.8. Crates 33

5. Detailed technical and feasibility evaluation and cost effectiveness analysis 34
5.1. Selected building demolition 34
5.2. Metal stamping presses 35
5.3. PCB contaminated debris 36
5.4. Grease lines 38
5.5. Mercury contaminated waste 38
5.6. Asbestos containing material 38
5.7. Crates 41

6. Recommended course of action 43

7. Conceptual design and preliminary cost estimate 45

References 49

Executive summary

This report presents an Analysis of Remedial Alternatives for a removal action of non-structural materials from the Bossert Facility (the Site), 1002 Oswego Street, Utica, New York. In addition, due to the current structural condition of the Bossert building, some type of structural stabilization will need to be employed prior to the completion of Phase I remediation activities. Bossert is owned by the City of Utica and is listed as a Class 2 hazardous waste site (site code 6-33-029) by the State of New York. Eligible investigation and remediation costs are being funded (at 75% of eligible costs) by the State under Title III of the 1986 Environmental Quality Bond Act (EQBA). The remaining 25% of eligible costs are paid directly by the City of Utica (the City) per the statutory requirements of the 1986 EQBA.

Non-structural materials addressed in this report include:

- 28 large metal-stamping presses
- oil and grease lines
- polychlorinated biphenyl (PCB) and mercury contaminated debris
- asbestos containing material (ACM)
- crates stored at the exterior of the facility
- structural (roof) failure debris
- miscellaneous other debris including several large transformer carcasses

Remediation involving these materials comprises Phase 1 of a three phase remedial program for the Site. During Phase 2, the walls and other structural surfaces will be sampled to determine the extent of contamination of the building, while Phase 3 will consist of structural decontamination and/or disposal of the building. Phases 2 and 3 will be performed at a later date in the remedial program. Because it is a removal action, the program is consistent with requirements of the National Contingency Plan (NCP), the Comprehensive Environmental Response and Liability Act (CERCLA), the Title 3 Program State Assistance Grant Contract between the New York State Department of Environmental Conservation (NYSDEC) and the City of Utica, and the NYS Environmental Conservation Law.

The analysis of alternatives presented was designed according to provisions of the NCP, CERCLA, EQBA, and federal and state guidance material such as State Guidance Memoranda Nos. 4030 and 4046. The objective of the Analysis of Alternatives is to provide a technical basis to the City and to NYSDEC from a number of competing alternatives such that a Proposed Remedial Action Plan (PRAP) and a Record of Decision (ROD) can be developed by NYSDEC for Phase 1 removal activities. The alternatives were developed considering their effectiveness, implementability, protection of human health and the environment, community acceptance, and costs, and other considerations. At NYSDEC's request, recommendations for a course of action were developed by O'Brien & Gere Engineers, Inc., (O'Brien & Gere) in the form of the following ten media-specific recommendations based on previous sampling results and pertinent regulatory criteria.

- Removal and proper disposal of asbestos containing material (ACM) from the Site according to applicable regulatory requirements.

- Selective demolition of the building roof to provide a safer working environment during remediation and provide access to the metal stamping presses.

- External cleaning, disassembly, and disposal of the metal stamping presses.

- Segregation of contaminated debris into recyclable metal and "other" categories; decontamination and disposal of the metal, and disposal of the "other" debris.

- Disposal of the grease lines.

- Disposal of PCB contaminated hydraulic oils.
- Disposal of mercury contaminated waste.
- Disposal of crates currently staged at the exterior of Bossert building.
- Disposal of transformer carcasses and associated components, located in the transformer room.
- Disposal of miscellaneous debris from the areas where work is performed.

At NYSDEC's discretion, it is anticipated that a remedial method will be developed from among the media-specific alternatives of this report and a ROD prepared for the Phase 1 removal action.

Afterward, design and associated bid documents will be prepared by O'Brien & Gere on behalf of the City of Utica according to General Municipal Law and EQBA requirements, a contractor selected, and the remedial method implemented.

List of tables

Table 1 -	Estimated quantities of materials
Table 2 -	Summary of regulatory criteria potentially applicable or appropriate for Bossert Site remediation
Table 3 -	Transportation - summary of estimated costs
Table 4 -	Selected building demolition - estimated costs
Table 5 -	Detailed analysis of remedial alternatives - metals stamping presses
Table 6 -	Metal stamping presses - summary of estimated costs
Table 7 -	Metal stamping presses - estimated cost breakdown
Table 8 -	Detailed analysis of remedial alternatives - PCB contaminated debris
Table 9 -	PCB contaminated debris - summary of estimated costs
Table 10 -	PCB contaminated debris - estimated cost breakdown
Table 11 -	Detailed analysis of remedial alternatives - asbestos containing material
Table 12 -	Asbestos removal - estimated cost breakdown
Table 13 -	Air monitoring - estimated costs
Table 14 -	Preliminary cost estimate - summary of capital costs
Table 15 -	Treatment facilities - estimated cost breakdown

List of figures

Figure 1 -	General site map
Figure 2 -	Metal stamping press locations
Figure 3 -	Bossert site plan
Figure 4 -	Structural failure zones
Figure 5 -	Proposed demolition plan for equipment removal - alternative 1
Figure 6 -	Proposed demolition plan for equipment removal - alternative 2
Figure 7 -	Proposed demolition plan for equipment removal - alternative 3

List of appendixes

Appendix A - Summary of site history
Appendix B - Letter from Ray Lupe
Appendix C - Personnel communication with David Greenlaw
Appendix D - Personnel communication with John Miccoli
Appendix E - Letter from Ernest Regna
Appendix F - Letter from Jim Reagan

List of acronyms

AA	Analysis of Alternatives
ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
ARAR	Applicable or Relevant and Appropriate Requirement
BOD	Biochemical Oxygen Demand
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
ECL	Environmental Conservation Law
EQBA	Environmental Quality Bond Act (1986)
FS	Feasibility Study
NCP	National Contingency Plan
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NME	National Machinery Exchange
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOL	New York State Department of Labor
O&M	Operations and Maintenance
OHM	O.H. Materials Corp.
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
POTW	Publicly Owned Treatment Works
PPB	Parts per billion
PPM	Parts per million
PRAP	Proposed Remedial Action Plan
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SARA	Superfund Amendment and Reauthorization Act
SCG	Standards, Criteria, and Guidance
SIR	Site Investigation Report
SPDES	State Pollutant Discharge Elimination System
SWDF	Solid Waste Disposal Facility
SWMP	Solid Waste Management Plan

TCLP	Toxicity Characteristic Leachate Procedure
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage and Disposal Facility
TSS	Total Suspended Solids
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
WWTP	Waste Water Treatment Plant

1. Introduction

1.1. Report scope and objective

This report presents an Analysis of Remedial Alternatives for Phase 1 removal activities at the Site. The Site (as shown in Figure 1) is owned by the City and is listed as a Class 2 Inactive Hazardous Waste Site by the State of New York, Site Code 6-33-029. 75 percent of the eligible costs associated with the investigation and remediation of the Site are being reimbursed to the City under Title 3 of the EQBA. Funding was formally established in New York State Assistance Contract #C300241 between the City and the New York State Department of Environmental Conservation (NYSDEC) in 1991.

The objective of the Analysis of Remedial Alternatives is to provide a comparison of viable remedial options and a technical basis for the selection of final remedial actions from a number of feasible remedial alternatives. This selection process will provide the basis for the preparation of a PRAP and ROD by NYSDEC in consultation with the City of Utica, NYSDOH and the Public. The framework of the analysis is defined by the National Contingency Plan (NCP), provisions of the Comprehensive Environmental Response and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), the NYS Environmental Conservation Law (ECL), applicable USEPA guidance documents, and relevant NYSDEC Technical and Administrative Guidance Memoranda (TAGMs). The analysis is, therefore, consistent with the Order on Consent (the Order) between the City of Utica and NYSDEC (Index No. A6-0199-89-04) dated October 3, 1989 as well as State Assistance Contract #C300241.

The report provides alternatives for the remediation of the following media:

- 28 metal stamping presses
- grease lines within the facility
- PCB and mercury contaminated debris
- Asbestos Containing Material (ACM)
- crates stored to the east of the exterior of the Bossert facility
- electrical transformer carcasses
- miscellaneous debris

Activities developed to address these materials comprise Phase 1 of a three phase remedial program. Phase 1 is concerned with remediation of the non-structural components described above, while Phases 2 and 3 involve testing and remediation of the structural components of the facility to be conducted at a later date. The development, evaluation, and selection of alternatives was conducted using pertinent federal and state regulations and guidance material, investigatory results from an emergency removal action performed by the USEPA during 1986 and 1987, and results from an investigation recently performed by O'Brien & Gere Investigatory results and a history of site activities are presented in the Site Investigation Report and associated regulatory requirements (SIR; O'Brien & Gere, 1994). The SIR also lists preliminary remedial objectives for Phase 1 cleanup of the Site and associated regulations. Because of its importance to the Analysis of Remedial Alternatives, it is suggested that the SIR be reviewed together with this report.

1.2. Site background

The Bossert facility, while in production, utilized PCB oils in electrical transformers and in hydraulic presses used in the manufacturing process. Manufacturing processes, waste disposal practices, and machinery salvage operations performed subsequent to facility closure have resulted in the spread of PCB residues to structural materials, debris and to presses remaining within the facility. A summary of the significant events of the Site history can be found in Appendix A. A detailed discussion of the history of the Site is presented in the *Draft Site History - Bossert Site*, O'Brien & Gere, January 1993.

The City assumed ownership of the Bossert property through tax foreclosure following bankruptcy of the Bossert Corporation in 1987. On December 27, 1989, the City entered into an Administrative Order On Consent with NYSDEC for the remediation of the Bossert Site. Issues of concern at the Site include the following media: ACM; mercury contaminated waste; underground petroleum storage tank(s) (UST); and PCB residues in structural materials, debris, ACM and on press surfaces.

NYSDEC performed an initial Site inspection including sampling and analysis within the facility on March 21, 1986. The investigation discovered PCBs in oil samples at concentrations of 53 to 91 ppm. In 1986 and 1987, the USEPA Technical Assistance Team sampled oils from drums and sumps at the Site and detected PCB concentrations as high as 10,810 ppm. In 1988, O.H. Materials, Inc. (OHM), under contract to the USEPA, performed remedial efforts at the Site including removal of PCB transformers and decontamination of structural surfaces. After performing these efforts, OHM collected and analyzed wipe samples and bulk samples from treated building surfaces. Analytical results indicated that surficial levels of PCBs on many of the interior structural materials exceeded USEPA standards for reuse of the building. Data obtained from previous investigations are described in greater detail in *Draft Site History - Bossert Site*.

In September 1993, Petrone & Petrone, P.C. (Petrone & Petrone), under contract to the City, undertook a search for potentially responsible parties (PRPs) associated with the Site. Research conducted prior to and during the PRP search indicated that National Machinery Exchange (NME), Newark, New Jersey may own presses at the Site. NME was contacted by Petrone & Petrone via letter to solicit participation in the investigation and disposition of the presses. NME responded that it does not own presses at the Site. In view of this response and the ongoing PRP search and potential legal actions, site investigation and remediation activities are being conducted independently of potential PRP status and liability issues.

1.3. Current site conditions affecting the selection of alternatives

The discussion of alternatives presented in this report reflect current Site conditions to the extent that these conditions could affect non-structural remediation of the Site. Portions of the roof, for example, have collapsed or have deteriorated such that they would pose a health and safety hazard to workers engaged in remediation of the metal stamping presses. Similarly, asbestos pipe wrapping in the facility is deteriorated such that it cannot readily be encapsulated, and may have to be removed prior to remedial work for health and safety purposes.

Other conditions affecting the selection of Phase 1 alternatives include the degree of vandalism which has occurred at the Site over the past several years and the location of the Site with respect to residential housing. In spite of the efforts to provide site security through brush clearing, repair of the fence, installation of warning signs and securing all access to the building, it is possible that illegal entries could continue. In particular, it is felt that, should the presses and debris be left on-site, it would be reasonable to assume that trespassers would be exposed to residual contamination unless the area were to be decontaminated.

1.4. Report format

In addition to the Executive Summary and Chapter 1 - Introduction, the following chapters are contained in this report:

- Chapter 2 - Refinement of Remedial Objectives. In this chapter, remedial objectives presented in the SIR are discussed and refined. This chapter also presents a breakdown of quantities of various types of materials to be handled.

- Chapter 3 - Review of Regulatory Requirements. This chapter discusses relevant regulatory requirements and the application of these requirements to Phase 1 remedial activities.

- Chapter 4 - Identification and Preliminary Screening of Alternatives. In this chapter, specific actions are identified, screened and assembled into reasonable alternatives.

- Chapter 5 - Detailed Technical and Feasibility Evaluation and Cost Effectiveness Analysis. This chapter presents a detailed discussion of alternatives with respect to implementability, effectiveness and the protection of human health and the environment.

- Chapter 6 - Recommended Course of Action. This chapter presents a recommended course of action for Phase 1 remedial activities.

- Chapter 7 - Conceptual Design and Preliminary Cost Estimate. This chapter identifies and discusses design requirements and estimated costs associated with the recommended course of action.

This presentation format closely parallels the outline provided by Ray Lupe (NYSDEC Project Supervisor) in a letter to O'Brien & Gere dated June 29, 1994 (see Appendix B).

2. Refinement of remedial objectives

Preliminary remedial objectives were presented in the SIR. Those objectives are refined in this chapter for consideration by the City and NYSDEC when selecting a preferred remedial method for Phase 1 removal activities.

2.1. Remedial objective

As stated earlier, Phase 1 of this project involves a removal action that addresses the following non-structural components of the Bossert facility: PCB contaminated debris piles; metal stamping presses; grease lines; ACM; mercury contaminated waste; electrical transformer carcasses; miscellaneous debris; and PCB contaminated crates. These actions must comply with applicable State and Federal regulations, such that public health and the environment are protected. The NYS standards, criteria and guidance (SCGs) and required clean up levels for each media and each alternative are discussed in detail in Chapter 5.

2.2. Identification of volumes and areas

The following is a list of the estimated quantities of each media.

- There are 28 PCB contaminated, large metal stamping presses located in the press room area of the facility as shown on Figure 2. Although these presses are of assorted makes and models it has been estimated that the average weight of each press is approximately 50 tons. Approximate dimensions of each press are 30 feet high by 10 feet wide by 10 feet long.

- The metal stamping presses were lubricated by a central grease system. The remaining components of the system consist of approximately 650 feet of 1/8 inch diameter grease lines. A central grease distribution area consisting of a large diameter grease feed line is located in the southeast portion of the production area.

- Debris was placed in areas 2 and 3 (as shown on Figure 3) during the 1986 USEPA Emergency Removal Action. The volume of the debris piles has been estimated to be between 3500 to 5000 cubic yards of wood, concrete, paper, cardboard, metal, absorbent material ("kitty litter") and floor sweepings. The various materials are mixed and intertwined into heterogeneous piles stretching the length of the debris storage areas. If it is assumed that the piles do contain 5000 cy, in place, and that 35% of the in place volume consists of void spaces, then the compressed volume would be approximately 3250 cy. If it is assumed that 5% of the compressed volume is recyclable metal and that the density of that metal is 6.625 tons/cy, then there is approximately 1080 tons of recyclable metal. If it is assumed that the remaining 95% of the debris piles have an average density of 1 ton/cy, then there is approximately 3087 tons of "other" material. There are approximately ten to fifteen metal dumpsters located in Areas 2 and 3. These dumpsters contain some of the contaminated material described above. There are also three 55-gallon drums which contain mercury contaminated waste which are located in area 2.

- The volume of the pile of wooden crates is estimated to be 266 cy (12 ft x 12 ft x 50 ft). If it is assumed that 90% of this volume is void spaces, then if the crates were crushed the volume to be disposed of would be approximately 27 cy. Perhaps 1 cubic foot of this material may be recyclable metal.

- The information on the material discussed above is summarized in Table 1.

- There is a variety of ACM present at the Site. It has been estimated that there are: 1000 sq ft of floor tiles; 2000 sq ft of transite boards; 2500 lf of premolded plaster pipe insulation; 1500 lf of air cell pipe insulation; 300 sq ft of plaster pipe fitting insulation; 500 sq ft of piping insulation debris on the floor; 120 sq ft of boiler steam drum insulation; 110 sq ft of de-aerator tank insulation; and 100 lf of boiler gaskets. It is also estimated that there is a minimum of 56,300 sf of ACM incorporated into the various roof structures of the building.

3. Review of regulatory requirements

It is a statutory requirement that remedial actions at hazardous waste sites comply with legally applicable and appropriate state and federal requirements (i.e. Toxic Substances Control Act), unless provisions are made for their waiver. This chapter discusses remedial alternatives with respect to this requirement, and, therefore, supports the Analysis of Remedial Alternatives' objective presented in Chapter 1 of this report. In general, the regulations cited involve transportation, disposal, and worker safety requirements on a media-specific basis. Examples of their applicability are provided throughout the text.

3.1. Summary of regulations

The following is a summary of the state and federal regulations and guidance which are directly applicable to the Analysis of Remedial Alternatives:

<u>General</u>
- NYSDEC Technical and Guidance Memoranda (TAGM) 4030 and 4046

<u>PCBs</u>
- 6 NYCRR Parts 370, 371, 372, 373, 374, 375, and 376
- 40 CFR Part 761

<u>Asbestos</u>
- 40 CFR 763
- 40 CFR 61
- 12 NYCRR 56
- 29 CFR 1910
- 20 CFR 1926.58

Solid waste transport and disposal
- 6 NYCRR Part 360
- 6 NYCRR Part 364

Air monitoring
- TAGM HWR-89-4031

To further evaluate the applicability of federal and state regulations to the development of alternatives, phone conversations were held with Mr. David Greenlaw (USEPA Region II PCB Program Coordinator, see Appendix C) and Mr. John Miccoli (NYSDEC RCRA Program, see Appendix D). Mr. Greenlaw was contacted in accordance with 40 CFR Part 761 which requires that the regional spill coordinator be contacted for any spill which occurred prior to the effective date of the Spill Cleanup Policy, 1987. Information provided by these individuals is reflected in this chapter.

A summary of regulatory criteria potentially applicable or appropriate for Bossert Site Remediation has been compiled in Table 2.

3.1.1. General

NYSDEC TAGM 4030 - The Selection of Remedial Actions at Inactive Hazardous Waste Sites.

As its title implies, this TAGM describes the procedures and criteria for the selection of remedial actions at the Site. The TAGM incorporates amendments to the Superfund Amendment and Reauthorization Act (SARA) and the Resource Conservation and Recovery Act (RCRA) which restrict land burial and provide incentives to use treatment technologies in remedial programs. TAGM 4030 describes SCGs. In accordance with the TAGM, an alternative which does not meet SCGs and, if a waiver to an SCG is not appropriately justifiable, such an alternative is not considered further. TAGM 4030 lists a preferred hierarchy of remedial technologies against which the remedial alternatives for the Site have been compared. The preferred hierarchy is:

- Destruction - This type of remedy irreversibly destroys or detoxifies all or most of the hazardous waste to "acceptable clean-up levels". This type of remedy results in permanent reduction in the toxicity of all or most of the hazardous waste. Destruction would apply to the remedial actions involving cleaning of the presses or debris as well as incineration of PCB contaminated oil and mercury contaminated waste.

- Separation/treatment - This type of remedy results in permanent and significant reduction in the volume of material that is contaminated with hazardous waste. Separation and treatment would apply to remedial actions involving the PCB contaminated metal stamping presses as well as the metal debris contained in Areas 2 and 3 of the Bossert facility.

- Solidification/chemical vesication - This type of remedy is generally directed to those sites containing predominantly inorganic hazardous waste. This remedial technology is not applicable at the Site for this project phase.

- Control and isolation technologies - This type of remedial action significantly reduces the mobility of the hazardous waste, but does not significantly reduce the volume or toxicity of the hazardous waste. This type of remedial technology is not applicable at the Site.

- Off-site land disposal - This type of remedy is potentially applicable to remedial actions involving PCB contaminated presses and debris, as well as ACM and the crates. Whenever feasible and practical, scrap metal materials should be melted down, rather than be sent off-site for disposal.

TAGM 4030 goes on to describe the development of remedial actions. It notes that the media to be remediated are determined by information on the nature and extent of contamination, and applicable relevant and appropriate regulations (ARARs), which are federal requirements, and SCGs, which are state requirements. By reference, NYS SCGs also include federal guidance and standards. It should be noted that these two sets of criteria are not necessarily the same, and in cases of apparent discrepancy, the more stringent criteria typically applies.

Once developed, the remedial actions are screened with respect to the criteria set forth in TAGM 4030. The objective of screening remedial actions is to narrow the list of potential alternatives that will be evaluated in detail. Two basic criteria are used to screen actions: effectiveness and implementability.

A key aspect of the evaluation with respect to effectiveness is whether it protects human health and the environment. Both short term and long term effectiveness are evaluated: short term referring to the construction and implementation, and long term referring to the period after the remedial action is in place and effective. Implementability is a measure of both the technical and administrative feasibility of constructing, operating, and maintaining a remedial action alternative. Administrative feasibility refers to compliance with applicable rules, regulations and statutes, as well as the ability to obtain approval from other offices and agencies, and the availability of treatment, storage and disposal service capacity. Technical feasibility refers to the ability to construct and reliably operate while meeting technical specifications and criteria, as well as the availability of specific equipment and necessary technical specialists to operate the process units.

TAGM 4030 further describes the requirements for the detailed analysis of alternatives. The purpose of the detailed analysis of alternatives is the analysis and presentation of relevant information necessary to allow decision makers to select a site remedy. The specific requirements that must be addressed are:

- protection of human health and the environment
- compliance with SCGs and ARARs
- satisfying the preference for treatment that significantly and permanently reduces toxicity, mobility, or volume of hazardous waste as a principle element
- cost effectiveness

Seven evaluation criteria are developed to address these considerations:

- short term impacts and effectiveness
- long term effectiveness and performance
- reduction of toxicity, mobility, or volume
- implementability
- compliance with SCGs and ARARs
- overall protection of human health and the environment
- cost

To facilitate analysis, remedial alternatives have been developed for each contaminated media. The alternatives for each media are evaluated in detail in Chapter 5 using the criteria stated in TAGM 4030, as appropriate. In Chapter 6, recommended media-specific alternatives have been assembled.

3.1.2. Regulations covering PCBs and mercury

<u>Title 6 NYCRR Part 370 - Hazardous Waste Management System - General</u>

This Part of the New York Code of Rules and Regulations (NYCRR) provides terms and general standards applicable to Parts 371 through 376.

<u>Title 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes</u>

This Part defines a chemical-specific SCG that defines solid wastes which are hazardous wastes. Based on the characteristics of the hazardous waste, previous test results, and Part 371.3, the mercury drums in areas 2 and 3 would be considered a D009 waste (USEPA hazardous waste number), the PCB contaminated debris in areas 2 and 3 as a B007 waste with the exception of the metal debris, and the hydraulic oil in the presses as a B002 waste. Since the metal debris in areas 2 and 3 is not greater than 50 ppm PCBs by volume, it would not be considered a hazardous waste according to applicable regulations. It could, however, be considered subject to high-contact surface clean-up standards discussed under 40 CFR Part 761.

- Hydraulic machines (i.e. metal stamping presses) are addressed in part 371, subsection 4:

  "Hydraulic machines containing <1,000 ppm PCBs are no longer regulated as PCB listed hazardous waste, provided that all free-flowing liquid has been drained from the hydraulic machine. The drained liquid is a listed hazardous waste, as is any solvent used for flushing."

  "Hydraulic machines containing ≥1,000 ppm PCB are no longer regulated as PCB listed hazardous waste, provided that all free-flowing liquid has been drained from the hydraulic machine, and the drained hydraulic machine is flushed with a solvent in which PCBs are readily soluble. The solvent to be used for flushing must contain less than 50 ppm PCB. The drained liquid and the solvent used for flushing are listed hazardous wastes."

<u>Title 6 Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities</u>

This Part represents an action-specific SCG that establishes standards for generators and transporters of hazardous waste and standards for generators, transporters, and treatment, storage, or disposal facilities relating to the use of the manifest system and its recordkeeping requirements. As a hazardous waste, the PCB contaminated debris, mercury contaminated waste, and PCB contaminated drained oil will require manifesting if transported off-site. The metal stamping presses will not require manifesting. However, dismantling or disassembly and gross decontamination of the metal stamping presses may be required prior to shipment off-site for recycle. It is anticipated that the wash water treatment process will accumulate PCBs above regulated limits and the residuals generated will require either on-site treatment and disposal or manifesting prior to shipment off-site for treatment and disposal.

For each hazardous waste, the City would be identified as the generator of record.

Packaging of hazardous waste must conform to US Department of Transportation (USDOT) regulations 49 CFR Parts 173, 178, and 179. Labeling, marking, and placarding must conform to USDOT regulation 49 CFR Part 172.

Reporting and recordkeeping requirements are also listed in Part 372. Manifest records must be kept for a period of 3 years and test results for 3 years from the date of shipment. A copy of these records must be made available to NYSDEC.

Transporters of hazardous waste must comply with provisions of 6 NYCRR Part 364 "Waste Transporter Permit" and be permitted to transport hazardous waste in New York State. The transporter must keep a copy of the manifest signed by the generator for a period of 3 years.

Shipments by rail are governed by Part 372.7. Shipping by rail may be a viable option for portions of the waste or metal stamping presses.

<u>Title 6 NYCRR Part 373 - Hazardous Waste Management Facilities</u>

This Part is an action-specific SCG that regulates the treatment, storage, and disposal of hazardous wastes. Part 373 requirements are applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities. The requirements are specific to the disposal of hazardous waste within New York State. Thus, disposal facilities within New York State that accept PCB waste oil, mercury contaminated material, and PCB contaminated debris will be subject to permit requirements of this Part.

<u>Title 6 Part 375 - Inactive Hazardous Waste Disposal Sites</u>

This Part is a site-specific SCG which applies to the investigation and clean-up of inactive hazardous waste sites involving the expenditures of state monies. This part further defines the extent of public participation, site classifications, and remedy selection. General rules for the selection of a remedy require that the remedy eliminate or mitigate significant threats to the public health and to the environment and that the remedial program conform to state and federal standards, criteria, and guidance.

Title 6 NYCRR Part 376 - Land Disposal Restrictions

This Part identifies hazardous wastes that are restricted from land disposal. It further states that dilution is prohibited as a substitute for treatment.

- PCB wastes with less than 50 ppm may be subject to TSCA for disposal options and treatment standards. As indicated by correspondence with Mr. Ernest Regna - Chief Pesticides and Toxic substances Branch USEPA, dated 8/6/93 (see Appendix E), it is expected that many non-PCB disposal facilities may limit the level of PCB contamination that they will accept to significantly less than 50 ppm and may have their own sampling plan requirements. Based on this information a project threshold of 35 ppm has been established for the characterization of a material as a PCB waste.

- Liquid hazardous wastes (B002 wastes - i.e. hydraulic oil) containing PCBs at concentrations greater than or equal to 50 ppm are prohibited from land disposal in NYS, but may be disposed of out-of-state, in a TSCA-permitted landfill, if that method of disposal is allowed by the receiving state.

- Hydraulic oil containing PCBs at concentrations between 50 and 500 ppm may be incinerated or may undergo other types of permanent treatment (such as dechlorination or other forms of chemical destruction).

- Hydraulic oil containing PCBs at concentrations greater than 500 ppm will require incineration.

- Mercury contaminated wastes (D009 wastes) with over 260 mg/kg of total mercury are restricted from land disposal and must either be incinerated or be retorted and then incinerated.

- Solids contaminated with PCBs (B007 wastes) are allowed to be disposed of in a TSCA-permitted landfill, without treatment.

- It should be noted that the waste debris in areas 2 and 3 of the Site are subject to the anti-dilution regulations of this part.

Part 376 also discusses PCB disposal, noting the PCB contaminated wastes not regulated under Section 376.3 (b) shall be disposed of in accordance with the provisions of 40 CFR Part 761.

Title 40 CFR Part 761 - Poly-chlorinated Biphenyls (PCB's) Manufacturing, Processing, Distribution in Commerce, and Use Prohibition

Part 761 is a chemical-specific ARAR. Subpart G of 40 CFR Part 761 entitled PCB Spill Cleanup Policy provides clean-up levels for low and high contact PCB contaminated surfaces. The Policy specifies that high contact outdoor surfaces and low contact indoor surfaces be cleaned to $\leq$10 ug/100 cm^2 PCBs and that low contact, indoor pervious surfaces be cleaned to $\leq$10 ug/100 cm^2 or to $\leq$100 ug/100 cm^2 and encapsulated.

Alternatives affected by the PCB Spill Cleanup Policy are those related to the surface decontamination and storage on-site of the metal stamping presses and metals debris in areas 2 and 3.

Disposal of PCB contaminated waste out-of-state would be covered under Part 761 and the applicable regulations of the state in which the disposal facility is located.

Mr. Greenlaw stated that a cleanup level of 10 ug/100 cm^2 PCBs is appropriate for decontamination of the stamping presses in the event that the presses remain on-site (personal communication, 7/18/94, see Appendix D).

In a 9/27/94 conversation with Mr. Reagan of NYSDEC, Mr. Greenlaw strongly recommended a relatively thorough gross decontamination of the press components, prior to shipment off-site for meltdown (see Appendix F for a copy of Mr. Reagan's confirmation letter to Mr. Greenlaw). Although not necessarily a regulatory requirement, some periodic wipe testing of the component parts following decontamination was also strongly recommended. Mr. Greenlaw stated that a generalized goal would be to achieve a PCB surface contamination level of ≤100 ug/100 cm^2 following gross decontamination and that the decontamination process should be tuned or adjusted to meet this general goal level, if feasible or possible. If it is not feasible or possible to reach this maximum PCB surface contamination level following the gross decontamination process, then this information (remaining PCB surface contamination levels) should be noted on the shipping manifests for the press component parts. Mr. Greenlaw also stated that, as a practical matter, the mechanical disassembly of the presses would be preferred, if possible. However, if necessary, the use of torches or cutting equipment would also be allowed. Mr. Greenlaw further stated that it may also be desirable to recycle scrap metals (if practical) which are currently mixed-in with the debris in areas 2 and 3. If recovered, then these separated metals would require a gross decontamination process prior to be shipped off-site for remelt/recycling. Again, although not a regulatory requirement, a general goal would be a surface PCB contamination level of ≤100 ug/100 cm^2 following the gross decontamination process. Mr. Greenlaw went on to state that, from a regulatory standpoint, it is preferable that the scrap yard and smelting facilities be located in the US, although the hydraulic machines which contained fluids with PCB concentrations ≤50 ppm could be shipped outside the US for final disposal.

It should be noted that Part 761 contains language comparable to 6 NYCRR Part 371 for hydraulic machines, but that there are no NYSDEC regulations comparable to the PCB Spill Cleanup Policy for surface decontamination.

3.1.3. Regulations covering the removal of ACM

<u>Title 40 CFR Part 763 - Worker Protection Rule and Part 61 - National Emission Standard for Asbestos</u>

USEPA regulations potentially impacting asbestos removal work consist of Part 763, Subpart E, training requirements of the Asbestos Hazard Emergency Response Act (AHERA); and 40 CFR 61 Subparts A and M, notification, removal and disposal provisions of the National Emission Standards for Hazardous Air Pollutants

(NESHAP). USEPA training requirements are fulfilled through completion of state approved training. Therefore, persons holding valid New York State certification are recognized as fulfilling federal requirements. Notification and disposal requirements must be complied with, as well as engineering controls.

Title 29 Parts 1910 and 1926 - Occupational Exposure to Asbestos, Tremolite, Anthophyllite, and Actinolite

US Department of Labor, Occupational Safety and Health Administration (OSHA) requirements specific to asbestos are included in Part 1910, Section 1001 as well as Part 1926, Section 58. It is O'Brien & Gere's understanding that asbestos projects performed at the Site must be in compliance with these OSHA requirements, which address exposure limits, engineering controls, personnel protection, training and supervision.

NYCRR Title 12 Part 56 - Industrial Code Rule 56

Code Rule 56 is the most stringent state regulation involving asbestos which is potentially applicable to the Site. Code Rule 56 is enforced by the New York State Department of Labor (NYSDOL) and involves training and certification, engineering controls, air monitoring, project clearance and notifications. Code Rule 56 also requires performance of a pre-demolition asbestos survey prior to removing structural or load bearing building components. Asbestos removal must be conducted in accordance with Code Rule 56, or with project-specific variances from the Code Rule obtained for the Site.

The New York State Department of Health (NYSDOH) has also established asbestos training criteria as well as laboratory bulk and air sample analytical methods. The NYSDOH certifies laboratories performing asbestos analysis and approves training providers. Personnel performing asbestos-related work at the Site must maintain appropriate certifications throughout their involvement in the project.

3.1.4. Regulations covering solid waste transportation and disposal

Title 6 NYCRR Part 360 - Solid Waste Management Facilities

Part 360 is an action-specific SCG for the purposes of this FS. Part 360 regulates solid waste facilities, as opposed to hazardous waste facilities, located wholly or partially within NYS. Part 360 is applicable to actions involving the disposal of materials that were never hazardous, or materials that leave regulation as hazardous waste, or are exempted under Parts 370 through 376. Such materials could include: debris with less than 50 ppm of PCB contamination; crates; grease lines; metal stamping presses, once drained of oil; and friable asbestos. Any solid waste facility within NYS would have to meet the requirements of Part 360 in order to receive and dispose of these materials. Regulations governing the transportation of solid waste are set forth in 6 NYCRR Part 364. Non-friable ACM such as roofing and floor tiles may be exempted from NYSDEC transportation and disposal permit requirements. Transportation of waste water generated on-site will require a modified Part 364 permit.

3.1.5. Disposal facilities

There are a variety of treatment, storage and disposal facilities (TSDF) and solid waste disposal facilities (SWDF), both in-state and out-of-state, which may be utilized in conjunction with this project. The materials handling, treatment and disposal costs can vary widely depending on a number of factors such as: distance from the Site, applicable regulations, required treatment levels, the capacity of the facility and the going rates in the market. It should also be noted that a TSDF or SWDF owner can refuse to accept waste from any given source.

3.1.6. Water treatment requirements

Preliminary conversations with personnel from the Oneida County Sewer District and NYSDEC Division of Water have indicated that discharges to the sewer system will not be allowed, and that any waste water generated on-site, for example during decontamination or truck washing operations, would have to be pretreated, sampled and trucked to the WWTP. Prior to discharge to the WWTP the sample results must demonstrate that the water contains no characteristic hazardous waste, no listed hazardous waste, no PCBs, and concentrations of priority pollutant list compounds must be below regulatory requirements.

3.1.7. Air quality requirements

<u>TAGM HWR-89-4031 Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites</u>

In order to reduce the direct impacts on human health from contaminated dust, without placing an undue burden on the remedial activities, a fugitive dust suppression and real-time particulate monitoring program is required on-site. Dust suppression techniques must be employed during all site activities which may generate fugitive dust. Particulate monitoring must be employed when activities may generate fugitive dust from exposed waste or contaminated soil. An action level of 150 ug/m^3 has been included, to trigger further measures, as required.

3.1.8. Recycling

The NYS Solid Waste Management Plan (SWMP) calls for less emphasis on landfilling and places a higher priority on solid waste reduction, reuse and recycling. To be consistent with this plan, those materials removed from the Site under this phase, will be recycled as much as is feasible and practical.

4. Identification and preliminary screening of remedial alternatives

The following remedial alternatives have been developed for the media in question. The remedial actions which remain viable after screening are then assembled into alternatives for further evaluation. Definitions for the following terms have been developed in order to provide quantifiable criteria to be used in evaluating the alternatives described in this report:

- External cleaning - Prior to dismantling the machines, the cleaning of the exposed surfaces of the machines, such that there is no visual evidence of contamination.

- Draining - Removal of free flowing liquids from the machines.

- Gross decontamination - For the machines (following external cleaning, draining and dismantling), the cleaning of exposed surfaces to a target level of 100 ug/100 cm^2, as confirmed by wipe samples. For the metal debris, cleaning of exposed surfaces to a level $\leq$100 ug/100 cm^2, as confirmed by wipe samples.

- Major decontamination - For the machines (following external cleaning, draining and dismantling), the extensive cleaning of exposed surfaces to a level $\leq$10 ug/100 cm^2, as confirmed by wipe samples. For the metal debris, an extensive cleaning of exposed surfaces to a level $\leq$10 ug/100 cm^2, as confirmed by wipe samples.

- Residual - Those materials that are removed during external cleaning, draining and decontamination and are separated from the wash water during treatment, as well as any contaminated treatment materials such as cartridge filters and filter media.

4.1. No action

The "no action" alternative is intended to serve as a baseline for comparison of other alternatives. In the case of this project, the "no action" alternative actually implies "some action", such as the maintenance of the Site in its existing condition, with fencing and warning signs. The site security measures, implemented to date, are intended to provide for the short-term protection human health and the environment. It is evident from several illegal break ins that they are not wholly effective. Therefore, this alternative is not considered, for the long term, to be protective of human health and the environment. Therefore the "no action" alternative for the entire remediation project will not be considered further. The "no action" alternative has also serves as the baseline for comparison for each of the remedial tasks described below.

4.2. Selected building demolition

Minor roof collapses were recorded at the western end of the facility over the winter of 1992-93. The collapsed areas significantly increased in size over the winter of 1993-94 (see Figure 4). The south wall of the Cooling Room/Pickling Room has collapsed. Movement has occurred at the base of some of the columns that support portions of the roof adjacent to the collapsed areas. Other columns and beams have twisted or buckled, and there are cracks along one of the interior masonry walls. Other areas of the roof also buckled and exhibit cracked and deteriorated roof beams. Further structural failures are anticipated in these areas due to the unstable condition of the structure that remains standing. At this time, the advanced deterioration of the building structure does not appear to represent an immediate threat to public safety. Longer term, the exterior west wall of the Bossert building could represent a potential threat to public safety; in particular, if additional roof collapse occurs in this part of the building. However, it does represent a safety hazard and health risk to current on-site remediation workers, unless additional measures are taken to stabilize the structural condition of the building.

Also, the local fire department has stated that it is unwilling to enter the structure in the event of a fire, and that their strategy for fighting a fire at the facility would be to contain the blaze and prevent its spread to surrounding properties. The uncontrolled combustion of the various materials found on the Site may pose a threat to public health.

At the request of the City, O'Brien & Gere and Stetson-Harza (as subcontractor to O'Brien & Gere) are currently monitoring the status of the structure. During the construction of the Phase I remediation, the Contractor will be responsible for monitoring the structure.

There are several remedial "action" alternatives considered to address these issues. These actions include: selective demolition of the structure; selective bracing of the structure; and no action during Phase 1. The "no action" alternative is not considered implementable from the standpoint of worker safety and is not considered further. From the remaining remedial actions, four alternatives have been assembled for detailed evaluation in Chapter 5:

- Alternative 1 - Perform demolition activities in the Cooling Room, the Annealing Room and Pickling Room and remove the entire roof from the Press Room. Temporary bracing would be installed along the west wall of the Press Room, adjacent to Lenox Avenue, to support the free-standing wall. The debris resulting from demolition would be stored on-site. Refer to Figure 5 for the limits of the demolition area.

- Alternative 2 - Remove the entire roof of the Press Room and provide temporary bracing for the west wall of the Press Room. Refer to Figure 6 for the limits of the demolition area.

- Alternative 3 - Remove a portion of the roof of the Press Room, adjacent to the area that has previously collapsed or is showing signs of distress and provide temporary bracing where required. Refer to Figure 7 for the limits of the demolition area.

- Alternative 4 - Provide demolition and/or temporary structural stabilization of the Bossert building, as proposed by the Contractor.

4.3. PCB contaminated metal stamping presses

There are several remedial action alternatives for the disposal of the presses which have been considered. These actions are: "no action"; cleaning of external surfaces and draining of the free flowing fluids; decontamination of the interior and exterior surfaces; disassembly of the presses; disposal in a TSCA-permitted landfill; disposal in a sanitary landfill; delivery to a scrap dealer for segregation and subsequent meltdown; delivery directly to a smelter for meltdown; resale of presses, for use or as parts; cleaning the presses and leaving on-site; and proper disposal of residuals.

Under Part 376, residuals with PCB concentrations between 50 and 500 ppm may either be disposed at an out-of-state TSCA-permitted landfill (if allowed by the receiving state), or may by incinerated, or may undergo other types of permanent treatment (such as dechlorination or other forms of chemical destruction). Residuals with PCB concentrations greater than 500 ppm will require incineration.

The "no action" option is not considered effective from the standpoint of the long term protection of human health and the environment and compliant with SCGs because it does not reduce the toxicity, mobility or volume of the contamination. The "no action" alternative also does not comply with current TSCA requirements and USEPA guidance concerning residual PCB contamination for unrestricted use areas.

While off-site decontamination would involve the same processes as on-site decontamination, it has the added costs of having to transport contaminated material from the site, as well as the added risk to human health and the environment of spreading contamination to currently uncontaminated areas. Therefore, the site is the preferred location for performing decontamination activities. While off-site decontamination may still be possible, the alternatives developed herein assume on-site decontamination to be the most viable.

The roof structure is not considered capable of supporting the loads that would be imposed by rigging required to dismantle and remove the metal stamping presses. Therefore, the hoisting capability required to dismantle and remove the metal stamping presses will have to be supplied by either a portable gantry crane which could be maneuvered inside the building or by the selected demolition of the building which would allow access to the presses by a hydraulic crane.

- Alternative 1 - External cleaning and draining; disassembly; transport to a TSCA-permitted landfill for disposal; and proper disposal of residuals.

- Alternative 2 - External cleaning and draining; disassembly; gross decontamination; transport to an industrial landfill for disposal; and proper disposal of residuals.

- Alternative 3 - External cleaning and draining; disassembly; gross decontamination; transport to a scrap yard for segregation and subsequent meltdown; and proper disposal of residuals.

- Alternative 4 - External cleaning and draining; disassembly; gross decontamination; transport directly to a smelter for meltdown; and proper disposal of residuals.

- Alternative 5 - External cleaning and draining; disassembly; major decontamination; store on-site; and proper disposal of residuals.

- Alternative 6 - External cleaning draining; disassembly; major decontamination; sell for salvage, either intact or as parts; and proper disposal of residuals.

It should be noted that considerable effort has been expended to identify a use for the presses, both intact and as parts. At present, no such market has been identified and it appears unlikely that one exists.

4.4. PCB contaminated debris

As described above, the debris piles are comprised of a mixture of many different materials. The only material involved with any appreciable salvage value may be some of the metal. Therefore, one action would be to separate the recyclable metals from the "other" debris and sell the metal to a scrap dealer for subsequent meltdown. The other actions considered for the disposal of the material in its entirety are: "no action"; dispose at a TSCA-permitted landfill as PCB contaminated waste; decontaminate to less than 35 ppm and dispose of at an industrial landfill; or incinerate.

The "no action" option is not considered effective from the standpoint of the long term protection of human health and the environment and its lack of compliance with SCGs because it does not reduce the toxicity, mobility or volume of the contaminated debris. It is not considered further.

The "gate fee" for disposal at a TSCA-permitted landfill (quotation from Model City, NY Landfill) has been estimated at $250 per ton. The "gate fee" for disposal at a sanitary landfill has been estimated to be between $32 per ton (quotation from Lake View Landfill, Erie PA) and $44 per ton (quotation from Chautauqua County, NY Landfill). The estimated round trip distance from the site to: Model City is 400 miles; to Chautauqua County is 500 miles; and to Lake View is 600 miles.

Based on preliminary investigations, it appears that there may or may not be a railroad siding going into any given disposal facility. Therefore, it has been assumed that the rail cars will have to be unloaded at some siding near the selected facility and loaded onto trucks for final transport. During preliminary discussions, representatives of the NY Susquehanna and Western Railroad have indicated that rail transport between 200 and 400 miles will be from $1700 to $2700 per flat bed rail car. The quoted lading weight of a flat bed rail car is 60 tons, including the containers. Due to the irregular nature of the material, it has been assumed that the average weight of material per rail car will be 40 tons (10 tons per container, 4 containers per rail car). It has also been assumed that there will be additional costs at $0.40/ton mile and a round trip of 5 miles from the railroad siding to the disposal facility, as well as a cost for liners, when transporting hazardous waste, of $30/ton. It is assumed that there will be dedicated crane facilities available at the siding to transfer the loads from the rail cars to the trucks, at no extra cost.

Trucking costs have been estimated to be between $3 and $4 per load mile with another $300 per load for a lining, if carrying hazardous waste. It has been assumed that a truck load constitutes a container with 10 tons of material.

As summarized in Table 3 the estimated rail costs from the Site to: Model City range from \$100 to \$117/ton; Chautauqua County range from \$116 to \$138/ton; and Lake View range from \$133 to \$160/ton. The estimated trucking costs from the Site to: Model City range from \$150-\$190/ton; Chautauqua County range from \$180-\$230/ton; Lake View range from \$210-\$270/ton.

The SIR discussed one concept for potentially separating the debris piles. This concept involved the separation of visibly stained wood from unstained wood. The validity of this concept has been confirmed through sampling. But, the difference between "gate fees" at a TSCA-permitted landfill and an industrial landfill have been estimated to be between \$206 and \$218 per ton, plus up to \$300 per load for a liner. The labor involved in separating the wood from the other debris, cutting off the stained portions and then taking a representative sample to confirm that the unstained material is less then 35 ppm PCBs, so that the wood could go to an industrial landfill, would cost more than \$218 per ton. Therefore, this method is not considered cost effective.

No other pattern to the distribution of the contaminated material in the debris piles has been identified and the mixed and intertwined nature of the piles is such that there is no cost effective method of differentiating between "clean" debris and contaminated debris. Therefore, the contents of the debris piles in areas 2 and 3 are considered PCB contaminated waste.

The decontamination of the bulk of the materials mixed together in the debris, especially absorbent material, floor sweepings, wood, paper and cardboard is not considered technically feasible. The separation and decontamination of the metal debris is considered to be technically feasible. It is estimated that the metal debris can be cleaned to $\leq$100 ug/100 cm^2, which will allow disposal to: an industrial landfill; a scrap yard, for subsequent meltdown; and a smelter for meltdown. It should be noted that if the metal debris is either stored on-site or sold for direct use, then the required clean up level is $\leq$10 ug/100 cm^2. The potential salvage value of the recyclable metal debris has been estimated to be \$35 per ton. The potential cost savings over TSCA-permitted disposal is \$285 per ton, while also conserving landfill space. Thus, the separation of recyclable metal debris is considered a viable remedial action. The cost of incineration (estimated to be between \$.50 and \$1 per lb) is considered prohibitive when compared to the other actions. Incineration is considered appropriate only after the contamination has been concentrated during the draining of the presses and treatment of the wash water used for cleaning and decontamination.

Once emptied, the dumpsters could be cleaned and reused. Based on these remedial actions, six alternatives have been developed for further analysis:

- Alternative 1 - Do not separate debris; send all debris from areas 2 and 3 to a TSCA-permitted commercial chemical waste landfill.
- Alternative 2 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the scrap metal to $\leq$100 μg/100 cm^2 and send to an industrial landfill; properly dispose of residuals.
- Alternative 3 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq$100 μg/100 cm^2 and sell to a scrap yard, for subsequent distribution to smelters for melt down; properly dispose of residuals.
- Alternative 4 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq$100 μg/100 cm^2 and sell directly to a smelter for melt down; properly dispose of residuals.
- Alternative 5 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq$10 μg/100 cm^2 and leave on-site; properly dispose of residuals.
- Alternative 6 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a

TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq 10\ \mu g/100\ cm^2$ and sell for direct reuse; properly dispose of residuals.

While the actual means and methods used to accomplish the work are at the contractors discretion, the following are some potential materials handling methods. For removing the debris from the building it has been assumed that there will be a crew (or crews), each consisting of a skid steer loader and two laborers. The laborers will guide the skid steer and attach chains or grapples to the debris which will then be dragged out of the building. This operation will have to be performed in a such a manner as to avoid damaging the columns supporting the roof. Once the debris is outside, another crew will separate the recyclable metals from the "other" material. The "other" material will be loaded into containers by a crane, for transportation to the disposal site. The recyclable metals will be moved to a central washing facility for decontamination. A potential method of decontamination is a high pressure, detergent wash. Following decontamination the recyclable metals will be loaded by a crane for transportation.

4.5. Grease lines

Originally, due to the difficulty in obtaining sufficient samples for laboratory analysis it was decided that the one sample collected would be analyzed as a hazardous waste. This sample indicated that the grease is a non-hazardous solid waste. Subsequently, further grease samples have been collected and analyzed. The results from this later analysis confirm that the grease lines can be disposed of as non-hazardous waste solid waste. Further testing will be at the contractors expense, as required by the disposal facility.

4.6. Mercury contaminated waste

The results of the TCLP analyses presented in the SIR indicate that one of the two samples collected from the drums contained 10.8 mg/l of mercury, and mercury was undetected in the other. It should be noted that the drums were labeled, by the USEPA during the emergency removal action, as mercury contaminated waste. Based on the TCLP results, the concentration of total mercury can be estimated by multiplying by a factor of 20. Therefore, the estimated concentration of total mercury is 216 mg/kg, which is close enough to 260 mg/kg to be of concern. Since this conversion cannot accurately predict total mercury and since the samples may not be truly representative, it is conservative to assume that the contents of all three drums are high sub-category mercury wastes and therefore, must be incinerated.

4.7. Asbestos containing material

The analytical results presented in the SIR indicate that the PCB concentrations detected in the ACM were below the 35 ppm project threshold for characterization as PCB waste. Therefore, the ACM can be disposed solely as asbestos waste. There are several actions for the disposal of asbestos waste which were considered. These actions are: no action; implementation of an asbestos operations and maintenance program; repair; encapsulation; enclosure; or removal.

The "no action" option is not considered viable from the standpoint of the short term protection of human health because it does not reduce the toxicity, mobility or volume of the ACM and is not compliant with SCGs. The no action alternative is not considered further for these reasons.

- Alternative 1 - Operations and Maintenance (O&M) program. An asbestos O&M program is intended to preserve ACM in good condition and to prevent or strictly control potential fiber release episodes.

- Alternative 2 - Repair. Repair of ACM is appropriate in restoring materials with minor damage to an intact condition. Repaired materials must be included in an O&M program to prevent future damage.

- Alternative 3 - Encapsulation. Encapsulation involves treating ACM with a binding or sealing agent and can be effective in preventing fiber release from friable ACM, which are most commonly surfacing materials such as architectural finishes or spray-applied fireproofing.

- Alternative 4 - Enclosure. Enclosure can be an effective measure for minimizing the potential for damage through physical contact, as well as minimizing the effect of fiber release from other sources of damage. Enclosure involves construction of an air-tight structure around ACM, into which no entrance can be permitted.

- Alternative 5 - Removal. Asbestos waste can be removed and disposed of in two manners. Friable waste requires double-bagging or containerizing in accordance with the requirements of Code Rule 56 and the National Emissions Standards for Hazardous Air Pollutants (NESHAP - 40 CFR 61, Subpart M). Friable asbestos waste will be transported, by a transporter holding a viable Part 364 permit, to a landfill permitted to accept friable waste under Part 360 or, for out-of-state landfills, other appropriate state requirements.

Nonfriable asbestos containing waste, specifically roofing and flooring materials not rendered friable by removal or demolition activities, requires containerization as necessary in order to comply with Code Rule 56 and any applicable or obtained variances. This waste will be transported and disposed of as construction and demolition debris, as permitted by NYSDEC.

One other option, for treatment of asbestos waste, that of melting in a specifically manufactured furnace to render the waste non-asbestiform, is not considered feasible for this project. There is no certified facility performing this operation in the region, and the quantity of waste generated is expected to be too small to justify installation and permitting of a mobile furnace unit. Therefore, disposal by this method is expected to be cost prohibitive, and will not be considered further.

4.8. Crates

Four options have been considered for the crates: "no action"; disposal in a TSCA-permitted landfill; separation of the metal from the wood, followed by the recycling of the metal and disposal of the wood in a sanitary landfill; and disposal of the entire crate in a sanitary landfill.

- Alternative 1 - The "no action" option is to leave the crates in-place, with no further remedial action taken.
- Alternative 2 - If it is determined that the PCB contamination on the crates is over the 35 ppm threshold, used for characterization as PCB waste for this project, then the crates could be disposed of in a TSCA-permitted landfill.
- Alternative 3 - In accordance with NYS SWMP, the metal components of the crates could be separated from the wood and recycled. The wood components would be disposed in a landfill.
- Alternative 4 - The remaining viable option is to dispose of the entire crate as solid waste.

5. Detailed technical and feasibility evaluation and cost effectiveness analysis

5.1. Selected building demolition

The following is a detailed evaluation of Alternatives 1, 2 and 3 as described in Chapter 4. By its very nature, Alternative 4 cannot be evaluated until after the contract has been awarded. See Table 4 for the estimated costs of Alternatives 1, 2 and 3.

- Alternative 1 - Although this Alternative would require the most demolition work, it would also reduce the costs associated with the removal of the metal stamping presses from the building and would provide a removal point within the boundaries of the Site which would have minimal impact on the local residences or the general public. Rigging efforts for press removal could be significantly reduced and the presses could be dismantled and loaded onto trucks. The equipment removal point would be the south end of the Press Room. This alternative has the advantage of limiting the spread of contamination off-site.

- Alternative 2 - For this Alternative, the presses would again be dismantled and loaded onto trucks. The equipment removal point would be the loading docks located adjacent to the Shipping Room in area 4. The maneuvering of equipment in the building would be more restricted under this Alternative than it would be under Alternative 1. Equipment removal through the loading docks could effect the flow of traffic along Noyes Street during removal operations and may promote the spread of contamination off the Site.

- Alternative 3 - For this alternative the equipment would be disassembled with the use of a portable gantry crane, loaded onto a rail system and transported to the loading docks adjacent to the Shipping Room, in area 4. Equipment removal through the loading docks could effect the flow of traffic along Noyes Street during removal operations and may promote the spread of contamination off the Site.

5.2. Metal stamping presses

The six alternatives, developed in Chapter 4, are considered in detail in Table 5. See Table 6 for a summary of the estimated costs and Table 7 for the estimated cost breakdown. These six alternatives each involve the following common actions: the draining and proper disposal of internal fluids, if the internal fluids contain more than 1000 ppm of PCB (to date, no fluid has tested >1,000 ppm) then the internal areas of the machine will be flushed with a solvent and the residuals will be disposed; external cleaning will be performed in place to limit worker exposure and the potential for the spread of contamination; each machine will be shrouded to limit the spread of contamination through splashing; disassembly of the machines; and proper disposal of residuals.

- Alternative 1 - Disposal in a TSCA-permitted landfill. This alternative is not considered to be as cost-effective as some of the other alternatives in that there are other disposal options which perform the same function at a lower capital cost and without filling limited TSCA-permitted landfill space.

- Alternative 2 - Gross decontamination followed by disposal in an industrial landfill. This Alternative, although specifically discussed in 40 CFR 761.60 and 6 NYCRR Part 371, is not considered to be as cost-effective as some of the other alternatives in that there are other disposal options which perform the same function at a lower capital cost and without filling limited landfill space.

- Alternative 3 - Gross decontamination followed by sale to a scrap dealer for distribution and subsequent melt down. This alternative is considered to be the most cost-effective.

- Alternative 4 - Gross decontamination followed by delivery directly to a foundry and/or steel mill for melt down, as appropriate. This option is not considered to be as favorable as Alternative 3 in that the various components of the machines could be more efficiently segregated and recycled by a scrap dealer. It is expected that a scrap dealer will have an established market and distribution network, and the contractor or the City will not.

- Alternative 5 - Perform a major decontamination, consistent with 40 CFR Part 761, Subpart G, on the disassembled machines and store on-site. This alternative is not considered cost-effective in that other alternatives achieve the remedial objectives without the added cost of major decontamination. Also, storage on-site may imply the need to move the scrap at some future date, when it may interfere with future site uses.

- Alternative 6 - Perform a major decontamination on all surfaces of the disassembled machines, consistent with 40 CFR Part 761 Subpart G, and reuse the machines, either intact or as parts. Discussions with a local machinery broker have indicated that the cost of refitting the machines to meet current OSHA regulations would be prohibitive. It also appears that any machine components of any worth were stolen, for salvage value, following the 1986 equipment auction. Also, the machine electrical wiring has been vandalized and removed. Therefore, it appears that this equipment has minimal value as machines or as parts. Even if there is a market, this alternative is not considered as cost-effective as some of the other alternatives in that other alternatives achieve the remedial objectives without the added cost of major decontamination.

5.3. PCB contaminated debris

The six alternatives, as developed in Chapter 4, are considered in detail in Table 8. See Table 9 for a summary of estimated costs and Table 10 for an estimated cost breakdown.

- Alternative 1 - Do not separate the debris; send all debris to a TSCA-permitted commercial chemical waste landfill. This alternative is not considered cost effective in that other alternatives achieve the remedial objectives at a lower capital cost.

- Alternative 2 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq 100\ \mu g/100\ cm^2$ and send to an industrial landfill; properly dispose of residuals. This alternative is not considered cost effective in that Alternative 3 achieves the remedial objectives without the added costs of disposal of the metal in an industrial landfill.

- Alternative 3 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq 100\ \mu g/100\ cm^2$ and sell to a scrap yard, for subsequent distribution and melt down; properly dispose of residuals.

- Alternative 4 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq 100\ \mu g/100\ cm^2$ and sell directly to a smelter for melt down; properly dispose of residuals. This alternative is not considered as viable as Alternative 3, in that the various types of metal debris could be more efficiently segregated and recycled by a scrap dealer. It is expected that a scrap dealer will have an established market and distribution network, and the contractor and the City will not.

- Alternative 5 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq 10\ \mu g/100\ cm^2$ and leave on-site; properly dispose of residuals. This alternative is not considered as cost effective as other options, in that other options achieve the remedial objectives without the added cost of major decontamination. Also, storage on-site may imply the need to move the scrap at some future date, when it may interfere with future remediation activities or site uses.

- Alternative 6 - Separate the debris piles into recyclable metal and "other" categories; send "other" debris directly to a TSCA-permitted commercial chemical waste landfill; decontaminate the metal to $\leq 10\ \mu g/100\ cm^2$ and sell for direct (unrestricted) reuse; properly dispose of residuals. It is expected that the metal debris will have little, if any, value for direct reuse. Even if a market does exist, this alternative is not considered as cost-effective as other options, in that other options achieve the remedial objectives without the added cost of major decontamination.

5.4. Grease lines

There is only one action for the disposal of this waste which is considered effective, disposal of the waste in a landfill permitted to accept solid waste. Within New York State this would require disposal in a Part 360-permitted landfill. Out-of-state disposal would require placement in a similar type of solid waste disposal facility.

5.5. Mercury contaminated waste

There appears to be only one action for the disposal of this waste which is considered effective, namely incineration as a high subcategory, mercury contaminated waste.

5.6. Asbestos containing material

The five alternatives developed in Chapter 4 are considered in detail in Table 11. See Table 12 for estimated cost breakdown.

- Alternative 1 - Operations and Maintenance (O&M) program. An asbestos O&M program is intended to preserve ACM in good condition and to prevent or strictly control potential fiber release episodes. Implementation of such a program is appropriate within a stable facility in which operations can be controlled such that activities which could potentially impact ACM are avoided or performed by trained personnel using appropriate asbestos methods and procedures. At the Site, much of the ACM present is in a deteriorated condition and would require abatement to restore it to an undamaged state. High potential for damage exists through much of the facility due to roof leaks or collapse, as well as through unintentional disturbance during other expected operations involving contractors and heavy equipment. While the work of outside contractors could be controlled with some difficulty to avoid damaging ACM, roof leaks and collapse make implementation of an O&M program impractical. The short-term costs of O&M are typically much lower than removal, though long-term costs may approach or exceed the costs of initial removal.

- Alternative 2 - Repair. Repair of ACM is appropriate in restoring materials with minor damage to an intact condition. Repaired materials must be included in an O&M program to prevent future damage. At the Site, an O&M program would be ineffective in preventing future water damage due to roof leaks, the potential for roof collapse and damage from other remediation activities. Repair is also inappropriate for several of the more severely damaged materials present. Therefore, repair is not a recommended abatement option.

- Alternative 3 - Encapsulation. Encapsulation involves treating ACM with a binding or sealing agent and can be effective in preventing fiber release from friable ACM, most commonly surfacing materials such as architectural finishes or spray-applied fireproofing. Encapsulation is generally ineffective against damage due to physical contact or deterioration from water. As physical contact and water damage are the two most likely causes of fiber release at the Site, this method of abatement would not be appropriate.

- Alternative 4 - Enclosure. Enclosure can be an effective measure for minimizing the potential for damage through physical contact, as well as minimizing the effect of fiber release from other sources of damage. Enclosure involves construction of an air-tight structure around ACM, into which no entrance can be permitted. Therefore, enclosure is not appropriate for ACM insulated items which could potentially require maintenance or in areas where entrance may become necessary at some future time. The majority of the ACM present at the Site is present in areas which, it is anticipated, will require access at some time and may also be in areas subject to demolition or partial building collapse, jeopardizing the requisite air-tight seal in enclosed areas. Therefore, enclosure is not expected to be a practical option at the Site.

- Alternative 5 - Removal. Removal is the only one of the five abatement options which permanently eliminates hazards associated with asbestos from the Site. Removal is appropriate for significantly damaged materials and for ACM with a high potential for damage such as is present at the Site. Short-term costs for removal are typically higher than for other abatement options. Long-term costs for removal may be lower, however, as each of the other options requires implementation of an O&M program to track and maintain ACM while removal does not. Removal also has the benefit of removing one environmental concern from remediation plans for the Site. Therefore, the only appropriate asbestos abatement option at the Site is removal. Removal can be performed as a single operation, reducing unit pricing somewhat, or in several phases.

  - Alternative 5a. Asbestos-containing material may be removed as a single operation during Phase I remediation. Initial removal would eliminate concerns of unintentional disturbance of ACM as well as coordination and hazard communication issues among the multiple entities on-site. Fiber release and exposure concerns by contractors on-site, and by area residents, would therefore be eliminated as early in the remedial construction project as necessary.

  - Alternative 5b. Removal of ACM can be accomplished in phases prior to demolition activities in each section of the building. Phased removal would minimize initial costs while still providing a measure of protection from fiber release episodes for contractors on-site, as well as area residents. Disadvantages of phased removal include an anticipated higher overall cost, primarily due to multiple mobilization operations for the asbestos removal contractor, and the potential for inadvertent disturbance of ACM by the work of other contractors.

Roofing materials found to contain asbestos may be removed under the terms of a project specific variance from Code Rule 56. Removal would be performed as a part of selected building demolition activities, and would include air monitoring to evaluate, and if necessary facilitate a response to, airborne fiber concentrations. Transportation and disposal of roofing would be performed in accordance with NYSDEC requirements for construction and demolition debris. Therefore, removal of roofing would be performed separately from other asbestos removal activities.

5.7. Crates

The four alternatives, developed in Section 4.8., are considered in more detail below.

- Alternative 1 - "No action" This option does not reduce the toxicity, mobility or volume of PCB contamination on the crates. Therefore, in the long term, the "no action" option is not considered to be protective of human health and the environment and will not be considered further.

- Alternative 2 - The analytical results presented in the SIR indicate that while PCB contamination was detected on the wood portion of the crates, it is below the 35 ppm threshold used for characterization as PCB waste, for this project. Therefore the crates can be disposed of as non-PCB waste and there is no need to incur the added cost of disposal in a TSCA-permitted landfill.

- Alternate 3 - While it is recognized that the effort necessary to separate the metal from the crates is likely to cost more than the salvage value of the metal, it is also recognized that the optimization of recycling is a goal of the NYS SWMP, therefore this option remains viable.

- Alternative 4 - The remaining viable option is to dispose of the entire crate as solid waste.

6. Recommended course of action

The following is a summary of recommendations for the Phase 1 from among the Analysis of Remedial Alternatives. These recommendations were prepared by the engineering consultants for the City of Utica to assist the City, NYSDOH and NYSDEC in the preparation of a PRAP and subsequently, with input from the public, a ROD for the Bossert site. The recommendations for remedial action (as listed below) have been designed, to the maximum extent practical, to meet the program criteria and objectives previously stated in this report.

- Removal and proper disposal of asbestos containing material (ACM) from the Bossert facility according to applicable regulatory requirements.

- Selective demolition of the building roof to provide a safer working environment during remediation and provide access to the metal stamping presses.

- External cleaning, disassembly, gross decontamination to a target level of 100 ug/100 cm^2, and sale of the metal stamping presses to a scrap dealer for subsequent segregation, distribution and meltdown.

- Segregation of contaminated debris into recyclable metal and "other" categories, decontamination of metal debris to a surface clean-up level of $\leq$100 ug/100 cm^2, disposal of the metal to a scrap dealer for subsequent segregation, distribution and meltdown, and disposal of the "other" debris at a landfill permitted to accept PCB contaminated debris.

- Disposal of the grease lines as solid waste.

- Disposal of PCB contaminated residuals, consistent with State and Federal requirements.

- Incineration of mercury contaminated waste, at a permitted mercury waste incinerator.
- Disposal of crates currently staged at the exterior of the Bossert building as solid waste at a permitted SWDF.
- Disposal of electrical transformer carcasses and associated components, located in the transformer room.
- Disposal of miscellaneous debris from the areas in which work has been performed.

7. Conceptual design and preliminary cost estimate

Design documents for the Phase I Remediation of the Bossert Facility will be developed pending the findings of the PRAP, public comments and the ROD. Until such time as those findings become available, the following concepts are offered for consideration. These concepts should by no means be construed as the final actions appropriate for the completion of the Phase I remediation, but are only offered as a basis from which preliminary design documents may be developed.

The City will develop Contract Documents, suitable for public bid, in conformance with municipal law and the requirements of the EQBA. The "front of the book" would follow O'Brien & Gere's standard format, with modifications as necessary. The technical sections will have a performance based format which will describe the alternatives selected and the remediation standards which must be attained. In general, there will be one specification for each task to be completed. The front of the book, technical sections, Payment Items and Contract Drawings will be coordinated to provide a biddable contract.

In general, the actual means and methods used to attain the specified standards will be the responsibility of the Contractor, but with the following provisions. The Contractor will be required to confirm, through pilot testing, that the selected decontamination method can meet the specified criteria for metal decontamination. If it is found that the Contractor's decontamination method cannot meet the specified criteria, he will then implement successive alternate methods, until either the criteria is met or it is decided that the specified cleanup criteria is unattainable.

For the purposes of regulatory compliance, the City will be the Generator of Record for materials removed from the Site. A representative of the City or its designee will sign the appropriate manifests before materials are transported off-site. The conceptual design will include the following tasks:

- The Contractor will be responsible for site safety during construction and will produce a site specific Health and Safety Manual.

- The Contractor will be responsible for continuous, on-site air quality monitoring and dust suppression program in accordance with NYSDEC TAGM HWR-89-4031.

- The Contractor will be responsible for the proper removal and disposal of the asbestos containing material.

- The Contractor will be responsible for selected building demolition and/or bracing. Demolition waste will be left on-site for disposal at a future date, or disposed of at the City's discretion.

- The Contractor will be responsible for the proper cleaning, removal and disposal of the metal stamping presses.

- The Contractor will be responsible for the proper segregation, decontamination and disposal of the recyclable metal debris. The Contractor will be responsible for the proper disposal of "other" non-structural debris, located in areas 2 and 3.

- The Contractor will be responsible for the proper disposal of the crates, grease lines, and drums containing mercury contaminated material.

- The Contractor will be responsible for the proper disposal of electrical transformer carcasses and associated components, located in the transformer room.

- The Contractor will be responsible for the proper disposal of miscellaneous debris from the Site.

- The Contractor will be responsible for the design, erection, operation, sampling, maintenance and disassembly of an on-site wash water treatment facility. Discharges will be in accordance with the requirements of the waste water discharge permit to be issued by the County of Oneida Department of Public Works

- The Contractor will be responsible for the proper packaging, labeling, placarding and manifesting of all hazardous material which leaves the Site. Hazardous material transporters will have NYS waste transporter permits. All materials disposed from the Bossert Site will be sent to facilities which are properly permitted to receive such material.

- The Contractor will be responsible for the erection, operation, maintenance and disassembly of a truck washing station. Vehicles will be washed before leaving the Site.

Any equipment not discussed above such as ovens, furnaces and boilers will be left in place for disposal during Phase III removal activities.

See Table 13 for a preliminary cost estimate for air monitoring. See Table 14 for a preliminary cost estimate of the recommended alternatives.

The following discussion is provided as an example of what a treatment facility may consist of. The actual facility will be designed by the Contractor in coordination with his selected decontamination technology. See Table 15 for an estimated cost breakdown for this conceptual treatment facility.

- This facility will consist of an inlet holding tank, oil water separator, bag filters, granulated activated carbon filters, and discharge holding tanks. The wash water from the press cleaning operation, major press and/or scrap metal decontamination operation, and the truck washing facility will be pumped to the inlet holding tank/oil water separator. The holding tank/oil water separator will remove settlable solids and floatables such as grease and oil which can interfere with subsequent treatment processes. From the inlet holding tank the wash water will be pumped to one of two identical treatment lines. Only one of the parallel treatment lines will be on-line at any given time. The other line will be in standby. Each treatment line will consist of one bag filter and two carbon filters in series. The bag filter will remove the remaining settlable and suspended solids which could clog the carbon filters. The first carbon filter will remove the bulk of the remaining PCBs and the second carbon filter will serve to polish the effluent. The wash water produced during a day will be stored, sampled, and analyzed before being trucked to the WWTP. Sample taps will be provided between each unit of the treatment line, so that the effectiveness of each process can be evaluated. If it is determined that the performance of a treatment unit is no longer acceptable, then the standby line will be used while that unit is replaced.

Prepared by:

Jeffrey E. Banikowski, CPG - Project Manager
Scott M. Braymer - Design Engineer

References

O'Brien & Gere, 1993a. Bossert Site Phase I Work Plan, O'Brien & Gere, November 1993.

O'Brien & Gere, 1993b. Bossert Site Field Sampling Plan, O'Brien & Gere, September 1993.

O'Brien & Gere, 1993c. Bossert Site - Draft Site History, O'Brien & Gere, January 1993.

NYCRR Part 371. Identification and Listing of Hazardous Wastes, New York State Department of Environmental Conservation; November 30, 1993.

NYS 1986. 1986 Environmental Quality Board Act Title 3 - Municipal Hazardous Waste Site Remediation, New York State Department of Environmental Conservation; November 30, 1993.

40 CFR Part 761. Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution and Commerce and USE Prohibitions, United State Environmental Protection Agency; July 1, 1992.

NYSDEC 1989. Order On Consent Index #A6-0199-89-04 Site #633029, New York State Department of Environmental Conservation; October 23, 1989.

NYSDEC 1991. 1986 Environmental Quality Board Act Title 3 Inactive Hazardous Waste Disposal Site Remediation Program State Assistance Content, New York State Department Environmental Conservation; February 14, 1991.

NYSDEC, 1994. Telephone conservation between Mr. Jeffrey Banikowski (O'Brien & Gere) and Mr. John Miccoli (NYSDEC); July 7, 1994.

USEPA 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, United States Environmental Protection Agency; October 1988.

USEPA, 1993. Letter from Mr. Ernest Regna (USEPA) to Mr. Kyle Thomas (O'Brien & Gere); August 6, 1993.

USEPA, 1994. Telephone conservation between Mr. Jeffrey Banikowski and Mr. David Greenlaw (USEPA, PCB Program Coordinator); July 12, 1994.

TABLES

TABLE 1
ESTIMATED QUANTITIES OF MATERIALS
PHASE I – BOSSERT SITE, UTICA NY

MATERIAL	NUMBER OF UNITS	WEIGHT (average)	WEIGHT (total)	VOLUME (each)	VOLUME (total)	EPA HAZ WASTE CODE
Metal Stamping Presses	28	50 tons	1400 tons	111 cy	3111 cy	---
Recycable Metal Debris	---	---	1080 tons	---	250 cy (in place)	---
"Other" Debris	---	---	3087 tons	---	4750 cy (in place)	B007
Grease Lines	650 lf of 1/8" line	---	---	---	---	---
Mercury Contaminated Waste	---	---	---	55 gal	165 gal	D009
Crates	150	---	---	---	266 cy (in place)	---
Electrical Transformers	---	---	---	---	---	---
Miscellaneous Debris	---	---	100 tons	---	100 cy	---
PCB Contaminated Hydraulic Oil	---	---	---	---	---	B002
PCB Contaminated Residuals	---	---	---	---	---	B002

TABLE 2
SUMMARY OF REGULATORY CRITERIA
POTENTIALLY APPLICABLE OR APPROPRIATE
FOR BOSSERT SITE REMEDIATION

Matrix	Dispensation Alternative	Regulation	Applicability	Criteria
Facility Foundation	Disposal In-place*	NYSDEC TAGM 4046	Appropriate	1 or 10 ppm
	Landfill Disposal	40 CFR Part 761.60 (TSCA) and 6NYCRR Part 376	Applicable	> 50 mg/kg → TSCA landfill < 50 mg/kg → municipal landfill
	Reuse	40 CFR Part 761.120 (TSCA PCB Spill Policy)	Appropriate	10 $\mu g/100\ cm^2$
Facility Walls	Landfill Disposal	40 CFR Part 761.60 (TSCA) and 6NYCRR Parts 371, 376	Applicable	> 50 mg/kg → TSCA landfill < 50 mg/kg → municipal landfill
	Reuse	40 CFR Part 761.120 (TSCA PCB Spill Policy)	Appropriate	10 $\mu g/100\ cm^2$
Presses	Reuse (whole)	40 CFR Part 761.30 (TSCA)	Applicable	Internal fluids < 50 ppm
	Reuse (parts)	40 CFR Part 761.120 (TSCA PCB Spill Policy)	Appropriate	10 $\mu g/100\ cm^2$
	Metal Salvage	40 CFR Part 761.60 (TSCA) and 6NYCRR Parts 371, 376	Applicable	Drain and/or Internal Flush
	Landfill Disposal	40 CFR Part 761.60 (TSCA) and 6NYCRR Parts 371, 376	Applicable	Drain and/or Internal Flush
Porous Debris	Landfill Disposal	40 CFR Part 761.60 (TSCA) and 6NYCRR Part 376	Applicable	> 50 mg/kg → TSCA landfill < 50 mg/kg → municipal landfill
Metal Debris	Reuse	40 CFR Part 761.120 (TSCA PCB Spill Policy)	Appropriate	10 $\mu g/100\ cm^2$
	Disposal	40 CFR Part 761.60 (TSCA) and 6NYCRR Part 371,372,376	Applicable	Drain and/or Internal Flush
Liquids	Incineration	40 CFR Part 761.60 (TSCA) and 6NYCRR Part 376	Applicable	50 - 500 ppm → optional > 500 ppm → required
Asbestos	Landfill Disposal	40 CFR Part 761.60 (TSCA)	Applicable	> 50 mg/kg → TSCA landfill < 50 mg/kg → municipal landfill

* Disposal in-place consists of retiring the foundation on-site after removal of the above-ground structure and treatment of the slab, if necessary. The Site may then be reused by covering the slab with topsoil or by using the slab as a subfloor for a new structure.

TABLE 3 – TRANSPORTATION
BOSSERT SITE, UTICA NY
SUMMARY OF ESTIMATED COSTS

Estimated weight per container (tons)	10

Estimated containers per load

By Railroad	4
By Truck	1

Range of estimated costs per load mile	(low)	(high)
By Railroad	$6.75	$8.50
By Truck	$3.00	$4.00

Estimated Round Trip (miles)

To Model City Landfill	400
To Chautauqua County Landfill	500
To Lakeview Landfill	600

Estimated liner costs (per ton)	$30.00

Added trucking costs for railroad option (per ton)	$2.00

Range of estimated rail costs per ton (w/ liner)	Railroad (low)	Railroad (high)
To Model City TSCA Landfill	$100	$117
To Chautauqua County Sanitary Landfill	$116	$138
To Lakeview Sanitary Landfill	$133	$160

Range of estimated trucking costs per ton (w/ liner)	Trucking (low)	Trucking (high)
To Model City Landfill	$150	$190
To Chautauqua County Landfill	$180	$230
To Lakeview Landfill	$210	$270

TABLE 4 - SELECTED BUILDING DEMOLITION
BOSSERT SITE, UTICA NY
ESTIMATED COSTS

ALTERNATIVE 1

Description	Quantity	Units	Unit Cost	Cost
Roof ACM	15,100	sf	$2.00	$30,200
Roofing	69,000	sf	$0.65	$44,850
Masonry	5,500	cf	$0.21	$1,155
Walls (Cooling & Annealing Rooms)	5,000	sf	$1.40	$7,000
Girders & Roof Beams	7,400	lf	$6.00	$44,400
Columns	3,100	lf	$6.00	$18,600
Bracing/Sheeting	20,000	ls	$1.00	$20,000
Move Debris	10,000	ls	$1.00	$10,000
Subtotal - Direct Capital Costs				$176,205

ALTERNATIVE 2

Description	Quantity	Units	Unit Cost	Cost
Roof ACM	14,300	sf	$2.00	$28,600
Roofing	51,000	sf	$0.65	$33,150
Masonry	3,000	cf	$0.21	$630
Walls (Cooling & Annealing Rooms)	0	sf	$1.40	$0
Girders & Roof Beams	6,100	lf	$6.00	$36,600
Columns	2,300	lf	$6.00	$13,800
Bracing/Sheeting	20,000	ls	$1.00	$20,000
Move Debris	7,500	ls	$1.00	$7,500
Subtotal - Direct Capital Costs				$140,280

ALTERNATIVE 3

Description	Quantity	Units	Unit Cost	Cost
Roofing	16,100	sf	$0.65	$10,465
Masonry	0	cf	$0.21	$0
Walls (Cooling & Annealing Rooms)	0	sf	$1.40	$0
Girders & Roof Beams	2,100	lf	$6.00	$12,600
Columns	1,000	lf	$6.00	$6,000
Bracing/Sheeting	15,000	ls	$1.00	$15,000
Move Debris	2,000	ls	$1.00	$2,000
Subtotal - Direct Capital Costs				$46,065

Table 5
Detailed Analysis of Remedial Alternatives
Metals Stamping Presses
Phase I
Bossert Site, Utica NY

	Alternative 1 External cleaning, draining, disassembly, transport to a TSCA-permitted landfill for disposal, properly dispose of residuals from cleaning.	**Alternative 2** External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport to an industrial landfill for disposal, properly dispose of residuals from cleaning.	**Alternative 3** External cleaning, draining, disassembly, gross decon (target level of 100ug/100 cm^2), transport to a scrap yard for recycling and subsequent meltdown, properly dispose of residuals from cleaning.	**Alternative 4** External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport directly to a smelter for melt down, properly dispose of residuals from cleaning.	**Alternative 5** External cleaning, draining, disassembly, major decon (≤10ug/100cm ^{2}), store onsite, properly dispose of residuals from cleaning.	**Alternative 6** External cleaning, draining, disassembly, major decon (≤10ug/100 cm^2), sell for salvage either intact or as parts, properly dispose of residuals from cleaning.
OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT						
Protection of Human Health	Fencing will continue to minimize access to the study area and disturbance of contaminated material. On-site real time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Transporting contaminated material to a TSCA-permitted commercial chemical landfill will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated material to the commercial chemical landfill and/or incinerator.	Fencing will continue to minimize access to the study area and disturbance of contaminated material. On-site real time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Transporting contaminated material to a commercial landfill will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated material to the commercial landfill and/or incinerator.	Fencing will continue to minimize the potential for ingestion of or contact with contaminated material. On-site real time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Potential hazards to humans due to transportation of PCB contaminated material to the scrap dealer and residuals to landfill or incinerator.	Fencing will continue to minimize the potential for ingestion of or contact with contaminated material. On-site real time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Potential hazards to humans due to transportation of PCB contaminated material to the smelter and residuals to incinerator or landfill.	Fencing will continue to minimize the potential for ingestion of or contact with contaminated material during remediation. On-site real time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Potential hazards to humans due to transportation of PCB contaminated residuals to incinerator or landfill.	Fencing will continue to minimize the potential for ingestion of or contact with contaminated material during remediation. On-site real time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Potential hazards to humans due to transportation of PCB contaminated residuals to incinerator or landfill.
Protection of Environment	Landfilling of material and incineration of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material to commercial chemical landfill and residuals to an incinerator.	Landfilling of material and incineration of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material to commercial landfill and incinerator.	Recycling of material and incineration of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material to scrap yard and residuals to an incinerator.	Reuse of material and incineration of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material to scrap yard and residuals to an incinerator.	Major decon of material and incineration of residuals will minimize contact with PCBs by ecological receptors.	Major decon of material and incineration of residuals will minimize contact with PCBs by ecological receptors.
COMPLIANCE WITH SCGs						
Chemical-Specific SCGs	Consistent with Part 371, in that the machines with PCB concentrations <1000 ppm will be drained and machines with PCB concentrations ≥1000 ppm will be drained and flushed with a solvent.	Consistent with Part 371, in that the machines with PCB concentrations <1000 ppm will be drained and machines with PCB concentrations ≥1000 ppm will be drained and flushed with a solvent.	Consistent with Part 371, in that the machines with PCB concentrations <1000 ppm will be drained and machines with PCB concentrations ≥1000 ppm will be drained and flushed with a solvent.	Consistent with Part 371, in that the machines with PCB concentrations <1000 ppm will be drained and machines with PCB concentrations ≥1000 ppm will be drained and flushed with a solvent.	Consistent with Part 371, in that the machines with PCB concentrations <1000 ppm will be drained and machines with PCB concentrations ≥1000 ppm will be drained and flushed with a solvent. Consistent with Part 761, in that the surfaces will be cleaned to ≤10ug/100 cm^2 as required for high contact surfaces.	Consistent with Part 371, in that the machines with PCB concentrations <1000 ppm will be drained and machines with PCB concentrations ≥1000 ppm will be drained and flushed with a solvent. Consistent with Part 761, in that the surfaces will be cleaned to ≤10ug/100 cm^2 as required for high contact surfaces.

Table 5
Detailed Analysis of Remedial Alternatives
Metals Stamping Presses
Phase I
Bossert Site, Utica NY

	Alternative 1 External cleaning, draining, disassembly, transport to a TSCA-permitted landfill for disposal, properly dispose of residuals from cleaning.	Alternative 2 External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport to an industrial landfill for disposal, properly dispose of residuals from cleaning.	Alternative 3 External cleaning, draining, disassembly, gross decon (target level of 100ug/100 cm^2), transport to a scrap yard for recycling and subsequent meltdown, properly dispose of residuals from cleaning.	Alternative 4 External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport directly to a smelter for melt down, properly dispose of residuals from cleaning.	Alternative 5 External cleaning, draining, disassembly, major decon (≤10ug/100cm ^{2}), store onsite, properly dispose of residuals from cleaning.	Alternative 6 External cleaning, draining, disassembly, major decon (≤10ug/100 cm^2), sell for salvage either intact or as parts, properly dispose of residuals from cleaning.
Location-Specific SCGs	Consistent with Part 375, in that this alternative eliminates or mitigates significant threats to human health and the environment through cleaning, draining and proper disposal of the machines in a TSCA-permitted landfill as well as the proper disposal of any residuals created.	Consistent with Part 375, in that this alternative eliminates or mitigates significant threats to human health and the environment through cleaning, draining, gross decon and proper disposal of the machines in an industrial landfill as well as the proper disposal of any residuals created.	Consistent with Part 375, in that this alternative eliminates or mitigates significant threats to human health and the environment through cleaning, draining, gross decon and transport of the machines to a scrap yard for subsequent melt down, as well as the proper disposal of any residuals created.	Consistent with Part 375, in that this alternative eliminates or mitigates significant threats to human health and the environment through cleaning, draining, gross decon and transport of the machines to a smelter for melt down, as well as the proper disposal of any residuals created.	Consistent with Part 375, in that this alternative eliminates or mitigates significant threats to human health and the environment through cleaning, draining, major decon and storage of the machines on-site, as well as the proper disposal of any residuals created.	Consistent with Part 375, in that this alternative eliminates or mitigates significant threats to human health and the environment through cleaning, draining, major decon and sale of the machines, as well as the proper disposal of any residuals created.
Action-Specific SCGs	Particulate air quality standard will be attained through real-time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements would be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 373.	Particulate air quality standard will be attained through real-time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements would be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 373.	Particulate air quality standard will be attained through real-time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements would be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 373.	Particulate air quality standard will be attained through real-time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements would be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 373.	Particulate air quality standard will be attained through real-time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements would be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 373.	Particulate air quality standard will be attained through real-time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements would be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 373.
LONG-TERM EFFECTIVENESS AND PERMANENCE						
Magnitude of Residual Risk	This alternative is considered to have a low magnitude of residual risk. Short term risk will be reduced through continued maintenance of fences, signs and locks. Long term risk will be reduced through external cleaning, draining, disposal of the machines in a landfill; as well as incineration or landfilling of PCB contaminated residuals.	This alternative is considered to have a low magnitude of residual risk. Short term risk will be reduced through continued maintenance of fences, signs and locks. Long term risk will be reduced through external cleaning, draining, disposal of the machines in a landfill; as well as incineration or landfilling of PCB contaminated residuals.	This alternative is considered to have the lowest magnitude of residual risk. Short term risk will be reduced through continued maintenance of fences, signs and locks. Long term risk will be reduced through external cleaning, draining, gross decon and eventual melt down of the machines; as well as incineration or landfilling of PCB contaminated residuals.	This alternative is considered to have the lowest magnitude of residual risk. Short term risk will be reduced through continued maintenance of fences, signs and locks. Long term risk will be reduced through external cleaning, draining, gross decon and eventual melt down of the machines; as well as incineration or landfilling of PCB contaminated residuals.	This alternative is considered to have a low magnitude of residual risk. Short term risk will be reduced through continued maintenance of fences, signs and locks. Long term risk will be reduced through external cleaning, draining, and major decon of the machines; as well as incineration or landfilling of PCB contaminated residuals.	This alternative is considered to have a low magnitude of residual risk. Short term risk will be reduced through continued maintenance of fences, signs and locks. Long term risk will be reduced through external cleaning, draining, and major decon of the machines; as well as incineration or landfilling of PCB contaminated residuals.
Adequacy and Reliability of Controls	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Several methods of decon are reliable in separation of contaminants from metal surfaces. Land disposal, when properly implemented, is considered a reliable remedial measure. Several methods of disposal are considered to be effective and reliable for residuals.	Fencing is adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Several methods of decon are reliable in separation of contaminants from metal surfaces. Land disposal, when properly implemented, is considered a reliable remedial measure. Several methods of disposal are considered to be effective and reliable for residuals.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Several methods of decon are reliable in separation of contaminants from metal surfaces. Meltdown of metals is considered a reliable and effective remedial measure. Several methods of disposal are considered to be effective and reliable for residuals.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Several methods of decon are reliable in separation of contaminants from metal surfaces. Meltdown of metals is considered a reliable and effective remedial measure. Several methods of disposal are considered to be effective and reliable for residuals.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Several methods of decon are reliable in separation of contaminants from metal surfaces. Several methods of disposal are considered to be effective and reliable for residuals.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Several methods of decon are reliable in separation of contaminants from metal surfaces. Several methods of disposal are considered to be effective and reliable for residuals.

Table 5
Detailed Analysis of Remedial Alternatives
Metals Stamping Presses
Phase I
Bossert Site, Utica NY

	Alternative 1 External cleaning, draining, disassembly, transport to a TSCA-permitted landfill for disposal, properly dispose of residuals from cleaning.	**Alternative 2** External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport to an industrial landfill for disposal, properly dispose of residuals from cleaning.	**Alternative 3** External cleaning, draining, disassembly, gross decon (target level of 100ug/100 cm^2), transport to a scrap yard for recycling and subsequent meltdown, properly dispose of residuals from cleaning.	**Alternative 4** External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport directly to a smelter for melt down, properly dispose of residuals from cleaning.	**Alternative 5** External cleaning, draining, disassembly, major decon (≤10ug/100cm^2), store onsite, properly dispose of residuals from cleaning.	**Alternative 6** External cleaning, draining, disassembly, major decon (≤10ug/100 cm^2), sell for salvage either intact or as parts, properly dispose of residuals from cleaning.
REDUCTION OF TOXICITY, MOBILITY OR VOLUME THROUGH TREATMENT						
Treatment Process Used and Materials Treated	External cleaning and draining of machines. Proper disposal of residuals.	External cleaning, draining and gross decon of machines. Proper disposal of residuals.	External cleaning, draining and gross decon of machines. Proper disposal of residuals.	External cleaning, draining and gross decon of machines. Proper disposal of residuals.	External cleaning, draining and major decon of machines. Proper disposal of residuals.	External cleaning, draining and major decon of machines. Proper disposal of residuals.
Amount of Hazardous Material Destroyed or Treated	External cleaning and draining should remove visible signs of contamination.	External cleaning, draining and gross decon should reduce PCB contamination to a target level of 100 ug/100 cm^2.	Over the short term external cleaning, draining and gross decon should reduce PCB contamination to a target level of 100 ug/100 cm^2. Melt down of the machines should destroy 99.999% of the remaining PCB contamination.	Over the short term external cleaning, draining and gross decon should reduce PCB contamination to a target level of 100 ug/100 cm^2. Melt down of the machines should destroy 99.999% of the remaining PCB contamination.	External cleaning, draining and major decon should reduce PCB contamination to <10 ug/100 cm^2.	External cleaning, draining and major decon should reduce PCB contamination to <10 ug/100 cm^2.
Degree of Expected Reduction of Toxicity, Mobility or Volume	The overall degree of reduction is expected to be the least for the alternatives presented. Volume of contamination on the machines will be reduced through external cleaning and draining. Mobility of the contamination remaining on the machines will be reduced by disposal in a landfill. Either the toxicity of residuals will reduced by treatment; or the mobility of residuals will be reduced by landfilling.	The overall degree of reduction is expected to be greater than Alt 1 but less than Alts 3,4,5,& 6. Volume of contamination on the machines will be reduced through external cleaning, draining and gross decon. Mobility of the contamination remaining on the machines will be reduced by disposal in a landfill. Either the toxicity of residuals will reduced by treatment; or the mobility of residuals will be reduced by landfilling.	The overall degree of reduction is expected to be the highest with this alternative. Over the short term the volume of contamination on the machines will be reduced through external cleaning, draining and gross decon. Eventually the contamination remaining on the machines will be destroyed during meltdown. Either the toxicity of residuals will reduced by treatment; or the mobility of residuals will be reduced by landfilling.	The overall degree of reduction is expected to be the highest with this alternative. Over the short term the volume of contamination on the machines will be reduced through external cleaning, draining and gross decon. Eventually the contamination remaining on the machines will be destroyed during meltdown. Either the toxicity of residuals will reduced by treatment; or the mobility of residuals will be reduced by landfilling.	The overall degree of reduction is expected to be higher than Alt 2, but below Alts 3 & 4. The volume of contamination on the machines will be reduced through external cleaning, draining and major decon. Either the toxicity of residuals will reduced by treatment; or the mobility of residuals will be reduced by landfilling.	The overall degree of reduction is expected to be higher than Alt 2, but below Alts 3 & 4. The volume of contamination on the machines will be reduced through external cleaning, draining and major decon. Either the toxicity of residuals will reduced by treatment; or the mobility of residuals will be reduced by landfilling.
Degree to Which Treatment is Irreversible	Landfilling is expected to be somewhat reversible process for the machines, since theoretically the machines could be recovered from the landfill. Treatment of residuals is considered to be irreversible.	Landfilling is expected to be somewhat reversible process for the machines, since theoretically the machines could be recovered from the landfill. Treatment of residuals is considered to be irreversible.	Meltdown of the machines is an irreversible process. Treatment of residuals is also considered to be irreversible.	Meltdown of the machines is an irreversible process. Treatment of residuals is also considered to be irreversible.	Storage on-site is considered the most easily reversible alternative for the machines. Treatment of residuals is considered to be irreversible.	Salvage after resale is expected to be somewhat reversible for the machines, if the location of the machines is kept on record. Treatment of residuals is considered to be irreversible.
Type and Quantity of Residuals Remaining After Treatment	PCB contamination of interior and hidden surfaces. If decon residuals are incinerated, then ash is expected to be a residual from that process.	PCB contamination of interior and hidden surfaces. If decon residuals are incinerated, then ash is expected to be a residual from that process.	PCB contamination of interior and hidden surfaces may persist until meltdown, but is unlikely to remain after meltdown. If decon residuals are incinerated, then ash is expected to be a residual from that process.	PCB contamination of interior and hidden surfaces may persist until meltdown, but is unlikely to remain after meltdown. If decon residuals are incinerated, then ash is expected to be a residual from that process.	PCB contamination of interior and hidden surfaces may or may not persist even following a very through decontamination process. If decon residuals are incinerated, then ash is expected to be a residual from that process.	PCB contamination of interior and hidden surfaces may or may not persist even following a very through decontamination process. If decon residuals are incinerated, then ash is expected to be a residual from that process.

Table 5
Detailed Analysis of Remedial Alternatives
Metals Stamping Presses
Phase I
Bossert Site, Utica NY

	Alternative 1 External cleaning, draining, disassembly, transport to a TSCA-permitted landfill for disposal, properly dispose of residuals from cleaning.	**Alternative 2** External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport to an industrial landfill for disposal, properly dispose of residuals from cleaning.	**Alternative 3** External cleaning, draining, disassembly, gross decon (target level of 100ug/100 cm^2), transport to a scrap yard for recycling and subsequent meltdown, properly dispose of residuals from cleaning.	**Alternative 4** External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport directly to a smelter for melt down, properly dispose of residuals from cleaning.	**Alternative 5** External cleaning, draining, disassembly, major decon (≤10ug/100cm ^{2}), store onsite, properly dispose of residuals from cleaning.	**Alternative 6** External cleaning, draining, disassembly, major decon (≤10ug/100 cm^2), sell for salvage either intact or as parts, properly dispose of residuals from cleaning.
SHORT-TERM EFFECTIVENESS						
Protection of Community During Remedial Actions	Community will be restricted from access to study area. Continuous, real time, air quality monitoring, in conjunction with a dust suppression program, will help protect the adjoining community from the off-site migration of dust during site remediation.	Community will be restricted from access to study area. Continuous, real time, air quality monitoring, in conjunction with a dust suppression program, will help protect the adjoining community from the off-site migration of dust during site remediation.	Community will be restricted from access to study area. Continuous, real time, air quality monitoring, in conjunction with a dust suppression program, will help protect the adjoining community from the off-site migration of dust during site remediation.	Community will be restricted from access to study area. Continuous, real time, air quality monitoring, in conjunction with a dust suppression program, will help protect the adjoining community from the off-site migration of dust during site remediation.	Community will be restricted from access to study area. Continuous, real time, air quality monitoring, in conjunction with a dust suppression program, will help protect the adjoining community from the off-site migration of dust during site remediation.	Community will be restricted from access to study area. Continuous, real time, air quality monitoring, in conjunction with a dust suppression program, will help protect the adjoining community from the off-site migration of dust during site remediation.
Protection of Workers During Remedial Actions	Appropriate protective equipment will be used during remediation and transport.	Appropriate protective equipment would be utilized during remediation and transport.	Appropriate protective equipment would be utilized during remediation and transport.	Appropriate protective equipment would be utilized during remediation and transport.	Appropriate protective equipment would be utilized during remediation.	Appropriate protective equipment would be utilized during remediation.
Environmental Impacts	Contaminant transport during remediation would be minimized through appropriate methods such as: shrouding during decon; common on-site routes for of movement contaminated materials; vehicle washing before leaving the site; and dust control.	Contaminant transport during remediation would be minimized through appropriate methods such as: shrouding during decon; common on-site routes for of movement contaminated materials; vehicle washing before leaving the site; and dust control.	Contaminant transport during remediation would be minimized through appropriate methods such as: shrouding during decon; common on-site routes for of movement contaminated materials; vehicle washing before leaving the site; and dust control.	Contaminant transport during remediation would be minimized through appropriate methods such as: shrouding during decon; common on-site routes for of movement contaminated materials; vehicle washing before leaving the site; and dust control.	Contaminant transport during remediation would be minimized through appropriate methods such as: shrouding during decon; common on-site routes for of movement contaminated materials; vehicle washing before leaving the site; and dust control.	Contaminant transport during remediation would be minimized through appropriate methods such as: shrouding during decon; common on-site routes for of movement contaminated materials; vehicle washing before leaving the site; and dust control.
Time Until Remedial Action Objectives Are Achieved	Immediately following implementation. (1 construction season).	Immediately following implementation (1 construction season).	Immediately following implementation (1 construction season).	Immediately following implementation (1 construction season).	Immediately following implementation (1 construction season).	Immediately following implementation (1 construction season).
IMPLEMENTABILITY						
Ability to Construct and Operate the Technology	External cleaning, draining, disassembly, landfilling, transport and residual treatment are implementable. Fence locks, warning signs and maintenance already implemented.	External cleaning, draining, disassembly, landfilling, transport and residual treatment are implementable. Fence locks, warning signs and maintenance already implemented.	External cleaning, draining, disassembly, transport, recycling and residual treatment are implementable. Fence locks, warning signs and maintenance already implemented.	External cleaning, draining, disassembly, transport, smelting and residual treatment are implementable. Fence locks, warning signs and maintenance already implemented.	External cleaning, draining, disassembly, major decon, on-site storage and residual treatment are implementable. Fence locks, warning signs and maintenance already implemented.	External cleaning, draining, disassembly, major decon, reuse and residual treatment are implementable. Fence locks, warning signs and maintenance already implemented.
Reliability of Technology	External cleaning, draining, disassembly, landfilling, transport, treatment of residuals and fencing are reliable.	External cleaning, draining, disassembly, landfilling, transport, treatment of residuals and fencing are reliable.	External cleaning, draining, disassembly, transport, recycling, treatment of residuals and fencing are reliable.	External cleaning, draining, disassembly, transport, smelting, treatment of residuals and fencing are reliable.	External cleaning, draining, disassembly, major decon, storage on-site, treatment of residuals and fencing are reliable.	External cleaning, draining, disassembly, major decon, reuse, treatment of residuals and fencing are reliable.
Ease of Undertaking Additional Remedial Actions, If Necessary	Additional remedial actions readily implemented.	Additional remedial actions readily implemented.	Additional remedial actions readily implemented.	Additional remedial actions readily implemented.	Additional remedial actions maybe hampered by on-site storage.	Additional remedial actions readily implemented.
Ability to Monitor Effectiveness of Remedy	Resampling of surfaces would indicate remaining levels of contamination.	Resampling of surfaces would indicate remaining levels of contamination.	Resampling of surfaces would indicate remaining levels of contamination. Meltdown of the machines (or components) should eliminate any residual contamination.	Resampling of surfaces would indicate remaining levels of contamination. Meltdown of the machines (or components) should eliminate any residual contamination.	Resampling of surfaces would indicate remaining levels of contamination.	Resampling of surfaces would indicate remaining levels of contamination.

Table 5
Detailed Analysis of Remedial Alternatives
Metals Stamping Presses
Phase I
Bossert Site, Utica NY

	Alternative 1 **External cleaning, draining, disassembly, transport to a TSCA-permitted landfill for disposal, properly dispose of residuals from cleaning.**	**Alternative 2** **External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport to an industrial landfill for disposal, properly dispose of residuals from cleaning.**	**Alternative 3** **External cleaning, draining, disassembly, gross decon (target level of 100ug/100 cm^2), transport to a scrap yard for recycling and subsequent meltdown, properly dispose of residuals from cleaning.**	**Alternative 4** **External cleaning, draining, disassembly, gross decon (target level of 100 ug/100 cm^2), transport directly to a smelter for melt down, properly dispose of residuals from cleaning.**	**Alternative 5** **External cleaning, draining, disassembly, major decon (≤10ug/100cm ^{2}), store onsite, properly dispose of residuals from cleaning.**	**Alternative 6** **External cleaning, draining, disassembly, major decon (≤10ug/100 cm^2), sell for salvage either intact or as parts, properly dispose of residuals from cleaning.**
Coordination With Other Agencies	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation and disposal.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation and disposal.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation and recycling.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation and smelting.	Coordination between City of Utica, NYSDOH, NYSDEC and USEPA necessary to implement remediation and on-site storage.	Coordination between City of Utica, NYSDOH, NYSDEC and USEPA necessary to implement remediation and reuse.
Availability of Offsite Treatment, Storage and Disposal Services and Capacities	Landfill and treatment facilities and capacity expected to be readily available.	Landfill and treatment facilities and capacity expected to be readily available.	Scrap yard and treatment facilities and capacity expected to be readily available.	To date no smelting facilities willing to accept this material directly have been identified. Treatment facilities and capacity for are expected to be available.	Treatment facility and capacity expected to be readily available.	To date no market for reuse of this equipment has been identified. Treatment facilities and capacity for are expected to be available.
Availability of Necessary Equipment, Specialists and Materials	Equipment, material and personnel for decon, disassembly and transportation expected to be readily available	Equipment, material and personnel for decon, disassembly and transportation expected to be readily available	Equipment, material and personnel for decon, disassembly and transportation expected to be readily available.	Equipment, material and personnel for decon, disassembly and transportation expected to be readily available.	Equipment, material and personnel for decon, disassembly and on-site storage expected to be readily available.	Equipment, material and personnel for decon, disassembly and transportation expected to be readily available.
Availability of Prospective Technologies	Readily available.	Readily available.	Readily available.	Readily available.	Readily available.	Readily available.
COST						
Capital Costs	$856,400	$690,250	$355,650	$355,650	$440,210	$447,210
STATE ACCEPTANCE						
To be documented in the Record of Decision (ROD).						
COMMUNITY ACCEPTANCE						
To be assessed following the public comment period and documented in the Responsiveness Summary and the ROD.						

TABLE 6 - METAL STAMPING PRESSES
BOSSERT SITE, UTICA NY
SUMMARY OF ESTIMATED COSTS
Note: ($) represents credit to Owner

	Alternative 1 TSCA Landfill	Alternative 2 Sanitary Landfill	Alternative 3 Scrap Yard/meltdown	Alternative 4 Direct to Smelter	Alternative 5 Store On-site	Alternative 6 Direct reuse
External Cleaning	$120,270	$120,270	$120,270	$120,270	$120,270	$120,270
Disassembly	$120,130	$120,130	$120,130	$120,130	$120,130	$120,130
Gross Decon	----	$108,250	$108,250	$108,250	----	----
Major Decon	----	----	----	----	$199,810	$199,810
Transportation	$266,000	$280,000	$56,000	$56,000	----	$56,000
Disposal	$350,000	$61,600	($49,000)	($49,000)	----	($49,000)
Subtotal - Direct Capital Costs	$856,400	$690,250	$355,650	$355,650	$440,210	$447,210

TABLE 7 - METAL STAMPING PRESSES
BOSSERT SITE, UTICA NY
ESTIMATED COST BREAKDOWN
Note: ($) represents credit to Owner

Description	Quantity	Units	Unit Cost	Cost
External Cleaning				
Draining	1	ls	$1,320	$1,320
Scaffolding	150	ccf	$74	$11,100
Shrouding	70000	sf	$0.50	$35,000
Washers	2	ea	$2,000	$4,000
Labor	85	crew day	$750	$63,750
PPE	85	crew day	$60	$5,100
Subtotal				$120,270
Disassembly				
Torch	2800	lf	$27.50	$77,000
Crane	4	month	$3,600	$14,400
Operator	85	day	$166	$14,110
Rigger w/ PPE	85	day	$172	$14,620
Subtotal				$120,130
Decontamination				
Central Facility	1	ls	$5,000	$5,000
Washers	2	ea	$2,000	$4,000
Shrouding	2500	sf	$0.50	$1,250
On-site transport	280	load	$23	$6,440
Labor for Gross Decon (w/ PPE)	56	crew/day	$810	$45,360
Sampling for Gross Decon	28	machine	$1,650	$46,200
Labor for Major Decon (w/ PPE)	112	crew/day	$810	$90,720
Sampling for Major Decon	28	machine	$3,300	$92,400
Subtotal - Gross Decon				$108,250
Subtotal - Major Decon				$199,810
Transportation				
Truck to scrap yard (w/o liner)				
100 Mile Round Trip	140	load	$400	$56,000
Truck to TSCA landfill (w/liner)				
400 Mile Round Trip	140	load	$1,900	$266,000
Truck to sanitary landfill (w/o liner)				
500 Mile Round Trip	140	load	$2,000	$280,000
Disposal				
TSCA Landfill	1400	ton	$250	$350,000
Sanitary Landfill	1400	ton	$44	$61,600
Scrap Yard	1400	ton	($35)	($49,000)
Smelting	1400	ton	($35)	($49,000)
Store On-site	1400	ton	-----	$0
Reuse	1400	ton	($35)	($49,000)

Table 8
Detailed Analysis of Remedial Alternatives
PCB Contaminated Debris
Phase I
Bossert Site, Utica NY

	Alternative 1 Do not separate debris; send all debris to TSCA-permitted commercial chemical waste landfill.	**Alternative 2** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal debris to ≤100 ug/100 cm^2 and dispose in industrial landfill; properly dispose of residuals from cleaning.	**Alternative 3** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell to scrap dealer for subsequent meltdown; proper disposal of residuals from cleaning.	**Alternative 4** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell directly to a smelter for meltdown; properly dispose of residuals from cleaning.	**Alternative 5** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and store on-site; properly dispose of residuals from cleaning.	**Alternative 6** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and sell for direct reuse; properly dispose of residuals from cleaning.
OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT						
Protection of Human Health	Fencing will continue to minimize the potential for ingestion of or contact with contaminated material. On-site, real-time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction, both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Transporting contaminated material to a TSCA-permitted commercial chemical landfill will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated material.	Fencing will continue to minimize access to the site and disturbance of contaminated material. On-site, real-time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction, both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Transporting non-metals to a TSCA-permitted commercial chemical landfill and decon of metal will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated debris and residuals.	Fencing will continue to minimize access to the site and disturbance of contaminated material. On-site, real-time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction, both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Transporting non-metal to a TSCA-permitted commercial chemical landfill and decon of metal will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated material and residuals.	Fencing will continue to minimize access to the site and disturbance of contaminated material. On-site, real-time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction, both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Transporting non-metal to a TSCA-permitted commercial chemical landfill and decon of metal will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated material and residuals.	Fencing will continue to minimize access to the site and disturbance of contaminated material. On-site, real-time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction, both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Transporting non-metal to a TSCA-permitted commercial chemical landfill and decon of metal will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated material and residuals.	Fencing will continue to minimize access to the site and disturbance of contaminated material. On-site, real-time air quality monitoring and/or the use of dust suppression techniques may be required during remedial construction, both for the protection of on-site workers and the general public. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Transporting non-metal to a TSCA-permitted commercial chemical landfill and decon of metal will minimize direct human contact with PCBs. Potential hazards to humans due to transportation of PCB contaminated material and residuals.
Protection of Environment	Landfilling of material will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material.	Landfilling of debris and proper disposal of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of PCB contaminated debris and residuals.	Landfilling of debris, decon of metal and proper disposal of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material and residuals.	Landfilling of debris, decon of metal and proper disposal of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material and residuals.	Landfilling of debris, decon of metal and proper disposal of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material and residuals.	Landfilling of debris, decon of metal and proper disposal of residuals will minimize contact with PCBs by ecological receptors. Potential for hazards to the environment due to transportation of contaminated material and residuals.

Table 8
Detailed Analysis of Remedial Alternatives
PCB Contaminated Debris
Phase I
Bossert Site, Utica NY

	Alternative 1 Do not separate debris; send all debris to TSCA-permitted commercial chemical waste landfill.	**Alternative 2** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal debris to ≤100 ug/100 cm^2 and dispose in industrial landfill; properly dispose of residuals from cleaning.	**Alternative 3** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell to scrap dealer for subsequent meltdown; proper disposal of residuals from cleaning.	**Alternative 4** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell directly to a smelter for meltdown; properly dispose of residuals from cleaning.	**Alternative 5** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and store on-site; properly dispose of residuals from cleaning.	**Alternative 6** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and sell for direct reuse; properly dispose of residuals from cleaning.
COMPLIANCE WITH SCGs						
Chemical-Specific SCGs	Since separation of debris pieces with PCB concentrations >50 mg/Kg is not considered feasible, all of the debris is assumed to be contaminated. The only materials contained in the debris piles that are considered suitable to undergo a decontamination process are the metals. Therefore, to be consistent with Part 371, all "other" debris must be disposed of as PCB contaminated waste.	Since separation of debris pieces with PCB concentrations >50 mg/Kg is not considered feasible, all of the debris is assumed to be contaminated. The only materials contained in the debris piles that are considered suitable to undergo a decontamination process are the metals. Therefore, to be consistent with Part 371, all "other" debris must be disposed of as PCB contaminated waste.	Since separation of debris pieces with PCB concentrations >50 mg/Kg is not considered feasible, all of the debris is assumed to be contaminated. The only materials contained in the debris piles that are considered suitable to undergo a decontamination process are the metals. Therefore, to be consistent with Part 371, all "other" debris must be disposed of as PCB contaminated waste. Recycling of the metal is consistent with the NYS SWMP goal to optimize recycling. It is also assumed that the decontamination criteria for the metal debris will be consistent with recent guidance from USEPA regarding decontamination of the machines. Although this guidance is not a regulatory requirement, the USEPA has recommended a decontamination goal of ≤100 ug/100 cm^2 for surface contamination levels on the machines (and therefore on the metal debris) prior to meltdown. If this level cannot be obtained, then the sample results for that load will be listed on its shipping manifest.	Since separation of debris pieces with PCB concentrations >50 mg/Kg is not considered feasible, all of the debris is assumed to be contaminated. The only materials contained in the debris piles that are considered suitable to undergo a decontamination process are the metals. Therefore, to be consistent with Part 371, all "other" debris must be disposed of as PCB contaminated waste. Recycling of the metal is consistent with the NYS SWMP goal to optimize recycling. It is also assumed that the decontamination criteria for the metal debris will be consistent with recent guidance from USEPA regarding decontamination of the machines. Although this guidance is not a regulatory requirement, the USEPA has recommended a decontamination goal of ≤100 ug/100 cm^2 for surface contamination levels on the machines (and therefore on the metal debris) prior to meltdown. If this level cannot be obtained, then the sample results for that load will be listed on its shipping manifest.	Since separation of debris pieces with PCB concentrations >50 mg/Kg is not considered feasible, all of the debris is assumed to be contaminated. The only materials contained in the debris piles that are considered suitable to undergo a decontamination process are the metals. Therefore, to be consistent with Part 371, all "other" debris must be disposed of as PCB contaminated waste.	Since separation of debris pieces with PCB concentrations >50 mg/Kg is not considered feasible, all of the debris is assumed to be contaminated. The only materials contained in the debris piles that are considered suitable to undergo a decontamination process are the metals. Therefore, to be consistent with Part 371, all "other" debris must be disposed of as PCB contaminated waste. Recycling of the metal is consistent with the NYSDEC goal to optimize recycling.
Location-Specific SCGs	This alternative is consistent with Part 375, in that it mitigates significant threats to human health and the environment through the proper disposal of all debris in a TSCA-permitted landfill.	This alternative is consistent with Part 375, in that it mitigates significant threats to human health and the environment. Mitigation is achieved through the proper disposal of "other" debris in a TSCA-permitted landfill and the decontamination of all metal debris and its disposal in an industrial landfill.	This alternative is consistent with Part 375, in that it mitigates significant threats to human health and the environment. Mitigation is achieved through the proper disposal of all "other" debris in a TSCA-permitted landfill and the decontamination and subsequent metal down of all metal debris.	This alternative is consistent with Part 375, in that it mitigates significant threats to human health and the environment. Mitigation is achieved through the proper disposal of all "other" debris in a TSCA-permitted landfill and the decontamination and subsequent metal down of all metal debris.	This alternative is consistent with Part 375, in that it mitigates significant threats to human health and the environment. Mitigation is achieved through the proper disposal of all "other" debris in a TSCA-permitted landfill and the decontamination and subsequent on-site storage of all metal debris.	This alternative is consistent with Part 375, in that it mitigates significant threats to human health and the environment. Mitigation is achieved through the proper disposal of all "other" debris in a TSCA-permitted landfill and the decontamination and subsequent direct reuse of all metal debris.

November 21, 1994

Table 8
Detailed Analysis of Remedial Alternatives
PCB Contaminated Debris
Phase I
Bossert Site, Utica NY

	Alternative 1 Do not separate debris; send all debris to TSCA-permitted commercial chemical waste landfill.	**Alternative 2** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal debris to ≤100 ug/100 cm^2 and dispose in industrial landfill; properly dispose of residuals from cleaning.	**Alternative 3** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell to scrap dealer for subsequent meltdown; proper disposal of residuals from cleaning.	**Alternative 4** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell directly to a smelter for meltdown; properly dispose of residuals from cleaning.	**Alternative 5** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and store on-site; properly dispose of residuals from cleaning.	**Alternative 6** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and sell for direct reuse; properly dispose of residuals from cleaning.
Action-Specific SCGs	Particulate air quality standards will be attained through real time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements will be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 373. But, since the metal debris could be recycled, the landfilling of the metal is inconsistent with the NYS SWMP goal to optimize recycling.	Particulate air quality standards will be attained through real time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements will be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 360 and Part 373. But, since the metal debris could be recycled, the landfilling of the metal is inconsistent with the NYS SWMP goal to optimize recycling.	Particulate air quality standards will be attained through real time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements will be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 360 and Part 373.	Particulate air quality standards will be attained through real time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements will be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 360 and Part 373.	Particulate air quality standards will be attained through real time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements will be met during remediation. Manifesting will meet the requirements of Part 372. Part 364 requirements would be attained during transportation. Disposal facilities will meet the requirements of Part 360 and Part 373. But, since the metal debris could be recycled, the landfilling of the metal is inconsistent with the NYS SWMP goal to optimize recycling.	Particulate air quality standards will be attained through real time, on-site air quality monitoring and the proper implementation of a dust suppression program. OSHA requirements will be met during remediation. Manifesting would meet the requirements of Part 372. Part 364 requirements will be attained during transportation. Disposal facilities will meet the requirements of Part 360 and Part 373.
LONG-TERM EFFECTIVENESS AND PERMANENCE						
Magnitude of Residual Risk	Maintenance of the existing fences, locks and signs will continue to minimize contact with contaminated material during remediation. For materials subject to final land disposal, some low level residual risk will remain at the final land disposal location. However, for a permitted and properly operated TSCA, RCRA or Part 360 disposal facility, this low level residual risk is minimized and is considered acceptable. Also, the removal of the PCB contaminated debris is necessary for the continued remediation of the building structure.	Maintenance of the existing fences, locks and signs will continue to minimize contact with contaminated material during remediation. For materials subject to final land disposal, some low level residual risk will remain at the final land disposal location. However, for a permitted and properly operated TSCA, RCRA or Part 360 disposal facility, this low level residual risk is minimized and is considered acceptable. Proper disposal is expected to mitigate risks from residuals generated during decontamination. Also, the removal of the PCB contaminated debris is necessary for the continued remediation of the building structure.	Maintenance of the existing fences, locks and signs will continue to minimize contact with contaminated material during remediation. For materials subject to final land disposal, some low level residual risk will remain at the final land disposal location. However, for a permitted and properly operated TSCA, RCRA or Part 360 disposal facility, this low level residual risk is minimized and is considered acceptable. Proper disposal is expected to mitigate risk from residuals generated during decontamination. Meltdown of the metal debris should eliminate any remaining residuals. Also, the removal of the PCB contaminated debris is necessary for the continued remediation of the building structure.	Maintenance of the existing fences, locks and signs will continue to minimize contact with contaminated material during remediation. For materials subject to final land disposal, some low level residual risk will remain at the final land disposal location. However, for a permitted and properly operated TSCA, RCRA or Part 360 disposal facility, this low level residual risk is minimized and is considered acceptable. Proper disposal is expected to mitigate risk from residuals generated during decontamination. Meltdown of the metal debris should eliminate any remaining residuals. Also, the removal of the PCB contaminated debris is necessary for the continued remediation of the building structure.	Maintenance of the existing fences, locks and signs will continue to minimize contact with contaminated material during remediation. For materials subject to final land disposal, some low level residual risk will remain at the final land disposal location. However, for a permitted and properly operated TSCA, RCRA or Part 360 disposal facility, this low level residual risk is minimized and is considered acceptable. Proper disposal is expected to mitigate risk from residuals generated during decontamination. Meltdown of the metal debris should eliminate any remaining residuals. Also, the removal of the PCB contaminated debris is necessary for the continued remediation of the building structure.	Maintenance of the existing fences, locks and signs will continue to minimize contact with contaminated material during remediation. For materials subject to final land disposal, some low level residual risk will remain at the final land disposal location. However, for a permitted and properly operated TSCA, RCRA or Part 360 disposal facility, this low level residual risk is minimized and is considered acceptable. Proper disposal is expected to mitigate risk from residuals generated during decontamination. Meltdown of the metal debris should eliminate any remaining residuals. Also, the removal of the PCB contaminated debris is necessary for the continued remediation of the building structure.

Table 8
Detailed Analysis of Remedial Alternatives
PCB Contaminated Debris
Phase I
Bossert Site, Utica NY

	Alternative 1 **Do not separate debris; send all debris to TSCA-permitted commercial chemical waste landfill.**	**Alternative 2** **Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal debris to ≤100 ug/100 cm^2 and dispose in industrial landfill; properly dispose of residuals from cleaning.**	**Alternative 3** **Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell to scrap dealer for subsequent meltdown; proper disposal of residuals from cleaning.**	**Alternative 4** **Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell directly to a smelter for meltdown; properly dispose of residuals from cleaning.**	**Alternative 5** **Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and store on-site; properly dispose of residuals from cleaning.**	**Alternative 6** **Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and sell for direct reuse; properly dispose of residuals from cleaning.**
Adequacy and Reliability of Controls	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Land disposal, when properly implemented, is considered a reliable remedial measure.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Land disposal, when properly implemented, is considered a reliable remedial measure. Several methods of decon are reliable in separation of contaminants from metal surfaces. Several methods for the treatment and disposal of residuals are considered to be effective and reliable.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Land disposal, when properly implemented, is considered a reliable remedial measure. Meltdown of metals is also considered a reliable and effective remedial measure. Several methods of decon are reliable 870Xseparatioof contaminants from metal surfaces. Several methods for the treatment and disposal of residuals are considered to be effective and reliable.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Land disposal, when properly implemented, is considered a reliable remedial measure. Meltdown of metals is also considered a reliable and effective remedial measure. Several methods of decon are reliable in separation of contaminants from metal surfaces. Several methods for the treatment and disposal of residuals are considered to be effective and reliable.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Land disposal, when properly implemented, is considered a reliable remedial measure. Several methods of decon are reliable in separation of contaminants from metal surfaces. Several methods for the treatment and disposal of residuals are considered to be effective and reliable.	Fencing is considered adequate and reliable in restricting activities resulting in potential ingestion of or contact with contaminated material. Land disposal, when properly implemented, is considered a reliable remedial measure. Several methods of decon are reliable in separation of contaminants from metal surfaces. Several methods for the treatment and disposal of residuals are considered to be effective and reliable.
REDUCTION OF TOXICITY, MOBILITY OR VOLUME THROUGH TREATMENT						
Treatment Process Used and Materials Treated	No treatment.	Gross decon of metals and proper disposal of residuals.	Gross decon and meltdown of metals. Proper disposal of residuals.	Gross decon and meltdown of metals. Proper disposal of residuals.	Major decon of metals and proper disposal of residuals.	Major decon of metals and proper disposal of residuals.
Amount of Hazardous Material Destroyed or Treated	No treatment.	Gross decon will reduce contamination on metal to ≤100 ug/100 cm^2.	Meltdown is considered 99.999% effective for the material recycled. Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment.	Meltdown is considered 99.999% effective for the material recycled. Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment.	Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment.	Incineration is considered 99.999% effective in destroying PCBs in residuals.
Degree of Expected Reduction of Toxicity, Mobility or Volume	No reduction in toxicity or volume of contamination. Mobility of contamination will be reduced with proper disposal in a landfill.	Volume of contamination on the metal debris will be reduced to ≤100ug/100 cm^2. Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment. Mobility of contamination will be reduced with proper disposal in a landfill.	Volume of contamination on the metal debris will be reduced to ≤100ug/100 cm^2. Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment. Remelting of recyclable metals will reduce the volume of material which ultimately requires land disposal.	Volume of contamination on the metal debris will be reduced to ≤100ug/100 cm^2. Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment. Remelting of recyclable metals will reduce the volume of material which ultimately requires land disposal.	Volume of contamination on the metal debris will be reduced to ≤10 ug/100 cm^2. Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment. On-site storage of recyclable metals will reduce the volume of material which ultimately requires land disposal.	Volume of contamination on the metal debris will be reduced to ≤10 ug/100 cm^2. Volume and toxicity of PCB contaminated residuals will be reduced through proper treatment. Sale of recyclable metals will reduce the volume of material which ultimately requires land disposal.
Degree to Which Treatment is Irreversible	Landfilling is expected to be a somewhat reversible process, since theoretically, the debris could be recovered from the landfill.	Landfilling is expected to be a somewhat reversible process, since theoretically, the debris could be recovered from the landfill. Treatment of residuals is expected to be irreversible.	Remelting of recyclable metals is considered to be irreversible. Landfilling is expected to be a somewhat reversible process, since theoretically, the debris could be recovered from the landfill. Treatment of residuals is expected to be irreversible.	Remelting of recyclable metals is considered to be irreversible. Landfilling is expected to be a somewhat reversible process, since theoretically, the debris could be recovered from the landfill. Treatment of residuals is expected to be irreversible.	On-site storage of the metal debris is considered to be the most easily reversible alternative. Landfilling is expected to be a somewhat reversible process, since theoretically, the debris could be recovered from the landfill. Treatment of residuals is expected to be irreversible.	Sale of the metal debris is considered to be the somewhat reversible, if the final location of the metal is kept on file. Landfilling is expected to be a somewhat reversible process, since theoretically, the debris could be recovered from the landfill. Treatment of residuals is expected to be irreversible.

Table 8
Detailed Analysis of Remedial Alternatives
PCB Contaminated Debris
Phase I
Bossert Site, Utica NY

	Alternative 1 Do not separate debris; send all debris to TSCA-permitted commercial chemical waste landfill.	**Alternative 2** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal debris to ≤100 ug/100 cm^2 and dispose in industrial landfill; properly dispose of residuals from cleaning.	**Alternative 3** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell to scrap dealer for subsequent meltdown; proper disposal of residuals from cleaning.	**Alternative 4** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 ug/100 cm^2 and sell directly to a smelter for meltdown; properly dispose of residuals from cleaning.	**Alternative 5** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and store on-site; properly dispose of residuals from cleaning.	**Alternative 6** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 ug/100 cm^2 and sell for direct reuse; properly dispose of residuals from cleaning.
Type and Quantity of Residuals Remaining After Treatment	Contamination will remain on debris at existing levels.	PCB contamination of interior and hidden surfaces.	PCB contamination of interior and hidden surfaces may persist until meltdown, but is unlikely to remain after meltdown.	PCB contamination of interior and hidden surfaces may persist until meltdown, but is unlikely to remain after meltdown.	PCB comtamination of interior or hidden surfaces may or may not persist even following a very through decontamination. Ash is expected to be a residual from the incineration of decon residuals.	PCB comtamination of interior or hidden surfaces may or may not persist even following a very through decontamination. Ash is expected to be a residual from the incineration of decon residuals.
SHORT-TERM EFFECTIVENESS						
Protection of Community During Remedial Actions	Dust control and monitoring will minimize PCB air migration during remediation and transport. Community will be restricted from access to study area. Monitoring, conformance with regulatory requirements, and public outreach will help protect the community from being adversely effected by the site Phase I remediation process.	Dust control and monitoring will minimize PCB air migration during remediation and transport. Community will be restricted from access to study area. Monitoring, conformance with regulatory requirements, and public outreach will help protect the community from being adversely effected by the site Phase I remediation process.	Dust control and monitoring will minimize PCB air migration during remediation and transport. Community will be restricted from access to study area. Monitoring, conformance with regulatory requirements, and public outreach will help protect the community from being adversely effected by the site Phase I remediation process.	Dust control and monitoring will minimize PCB air migration during remediation and transport. Community will be restricted from access to study area. Monitoring, conformance with regulatory requirements, and public outreach will help protect the community from being adversely effected by the site Phase I remediation process.	Dust control and monitoring will minimize PCB air migration during remediation and transport. Community will be restricted from access to study area. Monitoring, conformance with regulatory requirements, and public outreach will help protect the community from being adversely effected by the site Phase I remediation process.	Dust control and monitoring will minimize PCB air migration during remediation and transport. Community will be restricted from access to study area. Monitoring, conformance with regulatory requirements, and public outreach will help protect the community from being adversely effected by the site Phase I remediation process.
Protection of Workers During Remedial Actions	Appropriate protective equipment will be utilized during remediation and transport.	Appropriate protective equipment will be used during remediation and transport.	Appropriate protective equipment will be utilized during remediation and transport.	Appropriate protective equipment will be utilized during remediation and transport.	Appropriate protective equipment will be utilized during remediation and transport.	Appropriate protective equipment will be utilized during remediation and transport.
Environmental Impacts	Contaminant transport during remediation will be minimized through appropriate methods such as: common on-site routes for movement of contaminated materials; vehicle washing before leaving the site; and dust control. Long term environmental impacts will be minimized by conformance with applicable regulatory requirements and by implementation of recycling where feasible and practical.	Contaminant transport during remediation will be minimized through appropriate methods such as: common on-site routes for movement of contaminated materials; vehicle washing before leaving the site; and dust control. Long term environmental impacts will be minimized by conformance with applicable regulatory requirements and by implementation of recycling where feasible and practical.	Contaminant transport during remediation will be minimized through appropriate methods such as: common on-site routes for movement of contaminated materials; vehicle washing before leaving the site; and dust control. Long term environmental impacts will be minimized by conformance with applicable regulatory requirements and by implementation of recycling where feasible and practical.	Contaminant transport during remediation will be minimized through appropriate methods such as: common on-site routes for movement of contaminated materials; vehicle washing before leaving the site; and dust control. Long term environmental impacts will be minimized by conformance with applicable regulatory requirements and by implementation of recycling where feasible and practical.	Contaminant transport during remediation will be minimized through appropriate methods such as: common on-site routes for movement of contaminated materials; vehicle washing before leaving the site; and dust control. Long term environmental impacts will be minimized by conformance with applicable regulatory requirements and by implementation of recycling where feasible and practical.	Contaminant transport during remediation will be minimized through appropriate methods such as: common on-site routes for movement of contaminated materials; vehicle washing before leaving the site; and dust control. Long term environmental impacts will be minimized by conformance with applicable regulatory requirements and by implementation of recycling where feasible and practical.
Time Until Remedial Action Objectives Are Achieved	Immediately following implementation (1 construction season).	Immediately following implementation. (1 construction season).	Immediately following implementation (1 construction season).	Immediately following implementation (1 construction season).	Immediately following implementation (1 construction season).	Immediately following implementation (1 construction season).
IMPLEMENTABILITY						
Ability to Construct and Operate the Technology	Transport and landfilling are implementable. Fence locks, warning signs and maintenance already implemented.	Separation of large metal and non-metal debris, transport, landfilling and residual incineration are implementable. Fence locks, warning signs and maintenance already implemented.	Separation of large metal and non-metal debris, metal meltdown, transport, landfilling and residual disposal are implementable. Fence locks, warning signs and maintenance already implemented.	Separation of large metal and non-metal debris, metal meltdown, transport, landfilling and residual disposal are implementable. Fence locks and maintenance already implemented.	Separation of large metal and non-metal debris, transport, landfilling and residual disposal are implementable. Fence locks, warning signs and maintenance already implemented.	Separation of large metal and non-metal debris, transport, landfilling and residual disposal are implementable. Fence locks, warning signs and maintenance already implemented.

Table 8
Detailed Analysis of Remedial Alternatives
PCB Contaminated Debris
Phase I
Bossert Site, Utica NY

	Alternative 1 Do not separate debris; send all debris to TSCA-permitted commercial chemical waste landfill.	**Alternative 2** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal debris to ≤100 $ug/100\ cm^2$ and dispose in industrial landfill; properly dispose of residuals from cleaning.	**Alternative 3** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 $ug/100\ cm^2$ and sell to scrap dealer for subsequent meltdown; proper disposal of residuals from cleaning.	**Alternative 4** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤100 $ug/100\ cm^2$ and sell directly to a smelter for meltdown; properly dispose of residuals from cleaning.	**Alternative 5** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 $ug/100\ cm^2$ and store on-site; properly dispose of residuals from cleaning.	**Alternative 6** Separate debris into recyclable metal and "other" material; "other" material to TSCA-permitted commercial chemical waste landfill; decon recyclable metal to ≤10 $ug/100\ cm^2$ and sell for direct reuse; properly dispose of residuals from cleaning.
Reliability of Technology	Transport, landfilling and fencing are reliable.	Separation, transport, landfilling and fencing are reliable.	Separation, meltdown, landfilling, transport, treatment of residuals and fencing are reliable.	Separation, meltdown, landfilling, transport, treatment of residuals and fencing are reliable.	Separation, transport, landfilling, treatment of residuals and fencing are reliable. Decon to ≤10 $ug/100\ cm^2$ may or may not be achieveable.	Separation, transport, landfilling, treatment of residuals and fencing are reliable. Decon to ≤10 $ug/100\ cm^2$ may or may not be achieveable.
Ease of Undertaking Additional Remedial Actions, If Necessary	Additional remedial actions readily implemented.	Additional remedial actions readily implemented.	Additional remedial actions readily implemented.	Additional remedial actions readily implemented.	Implementation of additional remedial actions may or may not be hampered by storage of the material on-site.	Additional remedial actions readily implemented.
Ability to Monitor Effectiveness of Remedy	Resampling will indicate remaining levels of contamination.	Resampling will indicate remaining levels of contamination.	Resampling will indicate remaining levels of contamination.	Resampling will indicate remaining levels of contamination.	Resampling will indicate remaining levels of contamination.	Resampling will indicate remaining levels of contamination.
Coordination With Other Agencies	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement disposal.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation and disposal.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation, recycling and disposal.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation, recycling and disposal.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation, recycling and disposal.	Coordination between City of Utica, NYSDOH, NYSDEC, NYSDOT and USEPA necessary to implement remediation, recycling and disposal.
Availability of Offsite Treatment, Storage and Disposal Services and Capacities	Landfill facilities and capacity expected to be readily available.	Landfill and treatment facilities and capacity expected to be readily available.	Landfill, meltdown and treatment facilities and capacity expected to be readily available.	Landfill, meltdown and treatment facilities and capacity expected to be readily available.	Landfill and treatment facilities and capacity expected to be readily available.	Landfill and treatment facilities and capacity expected to be readily available.
Availability of Necessary Equipment, Specialists and Materials	Equipment, material and personnel for transportation and disposal expected to be readily available.	Equipment, material and personnel for separation, decon, transportation and disposal expected to be readily available	Equipment, material and personnel for separation, decon, transportation, meltdown and disposal expected to be readily available	Equipment, material and personnel for separation, decon, transportation, meltdown and disposal expected to be readily available	Equipment, material and personnel for separation, decon, transportation, and disposal expected to be readily available	Equipment, material and personnel for separation, decon, transportation, and disposal expected to be readily available. Market for resale of metals may or may not exist.
Availability of Prospective Technologies	Readily available.	Readily available.	Readily available.	Readily available.	Readily available.	Readily available.
COST						
Capital Costs	$1,986,722	$1,858,630	$1,600,510	$1,600,510	$1,665,742	$1,671,142
STATE ACCEPTANCE						
To be documented in the Proposed Remedial Action Plan (PRAP) and in the Record of Decision (ROD).						
COMMUNITY ACCEPTANCE						
To be assessed following the Public Meeting and the public comment period; and documented in the responsiveness summary and in the ROD.						

TABLE 9 - PCB CONTAMINATED DEBRIS
BOSSERT SITE, UTICA NY
SUMMARY OF ESTIMATED COSTS

Note: ($) represents credit to Owner

	Alternative 1 All to TSCA landfill	Alternative 2 "Other" to TSCA landfill Metal to sanitary landfill	Alternative 3 "Other" to TSCA landfill Metal to scrap dealer	Alternative 4 "Other" to TSCA landfill Metal to smelter	Alternative 5 "Other" to TSCA landfill Metal store on-site	Alternative 6 "Other" to TSCA landfill Metal reused
Removal	$110,450	$110,450	$110,450	$110,450	$110,450	$110,450
Separate	----	$12,956	$12,956	$12,956	$12,956	$12,956
Major Decon (<10 ug/100 sq cm)	----	----	----	----	$141,264	$141,264
Gross Decon (<100 ug/100 sq cm)	----	$70,632	$70,632	$70,632	----	----
Load	$42,792	$42,792	$42,792	$42,792	$42,792	$42,792
Transportation	$791,730	$802,530	$629,730	$629,730	$586,530	$629,730
Truck to TSCA landfill	$791,730	$586,530	$586,530	$586,530	$586,530	$586,530
Truck to sanitary landfill	----	$216,000	----	----	----	----
Truck to scrapyard	----	----	$43,200	$43,200	----	$43,200
Disposal	$1,041,750	$819,270	$733,950	$733,950	$771,750	$733,950
TSCA landfill	$1,041,750	$771,750	$771,750	$771,750	$771,750	$771,750
Sanitary landfill	----	$47,520	----	----	----	----
Recycle	----	----	($37,800)	($37,800)	----	($37,800)
Subtotal - Direct Capital Costs	$1,986,722	$1,858,630	$1,600,510	$1,600,510	$1,665,742	$1,671,142

TABLE 10 - PCB CONTAMINATED DEBRIS
BOSSERT SITE, UTICA NY
ESTIMATED COST BREAKDOWN
Note: ($) represents credit to Owner

Description	Quantity	Units	Unit Cost	Cost
Removal from building				
Loader	5000	cy	$1.84	$9,200
Labor	125	crew day	$750	$93,750
PPE	125	crew day	$60	$7,500
Subtotal				$110,450
Separate recyclable metal				
Loader	163	cy	$1.84	$300
Labor w/ PPE	125	hr	$101.25	$12,656
Subtotal				$12,956
Major decon recyclable metal (<10 ug/100 sq cm)				
Labor w/ PPE	86.4	crew day	$810	$69,984
Sampling	2160	ton	$33	$71,280
Subtotal				$141,264
Gross decon recyclable metal (<100 ug/100 sq cm)				
Labor w/ PPE	43.2	crew day	$810	$34,992
Sampling	1080	ton	$33	$35,640
Subtotal				$70,632
Load material into container				
Crane	4	month	$3,600	$14,400
Operator	672	hr	$20.75	$13,944
Rigger w/ PPE	672	hr	$21.50	$14,448
Subtotal				$42,792
Truck to Scrap Yard w/o liner				
100 mile round trip	1080	ton	$40	$43,200
Truck to TSCA Landfill w/ liner				
400 mile round trip	4167	ton	$190	$791,730
400 mile round trip	3087	ton	$190	$586,530
Truck to Sanitary Landfill w/o liner				
500 mile round trip	1080	ton	$200	$216,000
Disposal				
TSCA landfill	3087	ton	$250	$771,750
TSCA landfill	4167	ton	$250	$1,041,750
Sanitary landfill	1080	ton	$44	$47,520
Recycle	1080	ton	($35)	($37,800)

Table 11
Detailed Analysis of Remedial Alternatives
Asbestos Containing Material (ACM)
Phase I
Bossert Site, Utica NY

	Alternative 1 Implementation of an asbestos operations and maintenance program	**Alternative 2** Repair	**Alternative 3** Encapsulation	**Alternative 4** Enclosure	**Alternative 5** Removal
OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT					
Protection of Human Health	Fencing will continue to inhibit access to the study area and exposure to ACM. ACM at the Site is currently damaged; future weathering and structural deterioration is likely to further compromise ACM integrity, thus an O&M program would not adequately protect human health of future on-site workers.	Fencing will continue to inhibit access to the study area and exposure to ACM. The use of appropriate protective equipment during remedial activities will minimize potential threat to remedial workers. Initial repair would minimize exposure of humans to ACM.	Fencing will continue to inhibit access to the study area and exposure to ACM. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Encapsulation of damaged ACM is a recognized method of protecting human health from asbestos fibers.	Fencing will continue to inhibit access to the study area and exposure to ACM. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Enclosure would effectively prevent human exposure to ACM.	Fencing will continue to inhibit access to the study area and exposure to ACM. The use of appropriate protective equipment during remediation will minimize potential threat to workers. Removal will minimize the potential for future human exposure to ACM at the Site.
Protection of Environment	Human health issues drive asbestos remediation, therefore environmental impacts are not addressed.	Human health issues drive asbestos remediation, therefore environmental impacts are not addressed.	Human health issues drive asbestos remediation, therefore environmental impacts are not addressed.	Human health issues drive asbestos remediation, therefore environmental impacts are not addressed.	Human health issues drive asbestos remediation, therefore environmental impacts are not addressed.
COMPLIANCE WITH SCGs					
Chemical-Specific SCGs	OSHA requirements addressed in 29 CFR 1910 and 20 CFR 1926.58.	OSHA requirements addressed in 29 CFR 1910 and 20 CFR 1926.58.	OSHA requirements addressed in 29 CFR 1910 and 20 CFR 1926.58.	OSHA requirements addressed in 29 CFR 1910 and 20 CFR 1926.58.	OSHA requirements addressed in 29 CFR 1910 and 20 CFR 1926.58.
Chemical-Specific TBCs	None.	None.	None.	None.	None.
Location-Specific SCGs	None.	None.	None.	None.	None.
Action-Specific SCGs	None.	Consistent with the requirements of Industrial Code Rule 56 (12 NYCRR 56).	Consistent with the requirements of Industrial Code Rule 56 (12 NYCRR 56).	Consistent with the requirements of Industrial Code Rule 56 (12 NYCRR 56).	Consistent with the requirements of Industrial Code Rule 56 (12 NYCRR 56). Transporters subject to requirements of 6 NYCRR Part 364. Disposal facilities subject to 6 NYCRR Part 360. 40 CFR 61 Subparts A and M govern the notification, removal and disposal provisions of the National Emission Standards for Hazardous Air Pollutants.
Action-Specific TBCs	None.	None.	None.	None.	None.
LONG-TERM EFFECTIVENESS AND PERMANENCE					
Magnitude of Residual Risk	Fence locks and maintenance will continue to inhibit outside contact with ACM. Residual risk from currently damaged ACM remains high.	Fence locks and maintenance will continue to inhibit outside contact with ACM. ACM remaining in place subject to additional deterioration represents a significant residual exposure risk.	Fence locks and maintenance will continue to inhibit outside access to ACM. ACM remaining on the Site represents a significant residual liability associated with potential human exposure to fibers resulting from additional damage or deterioration.	Fence locks and maintenance will continue to minimize contact with ACM during remediation. ACM remaining in place represents a significant residual liability especially if enclosure integrity is compromised.	Effective ACM removal will result in minimized residual risk associated with ACM.

Table 11
Detailed Analysis of Remedial Alternatives
Asbestos Containing Material (ACM)
Phase I
Bossert Site, Utica NY

	Alternative 1 Implementation of an asbestos operations and maintenance program	**Alternative 2** Repair	**Alternative 3** Encapsulation	**Alternative 4** Enclosure	**Alternative 5** Removal
Adequacy and Reliability of Controls	Fencing is adequate and reliable in restricting activities resulting in outside contact with ACM. O&M is adequate for undamaged ACM. Because ACM is extensively damaged at the Site, O&M represents an inadequate remedial option at the Site.	Fencing is adequate and reliable in restricting activities resulting in potential contact with ACM. Subsequent O&M would be required at the Site to prevent further damage. An O&M program would be ineffective in preventing further damage to asbestos resulting from leaking water, roof collapse or accidental damage resulting from other remedial activities.	Fencing is adequate and reliable in restricting activities resulting in potential contact with ACM. Encapsulation is generally ineffective against damage due to physical contact or deterioration from water. Because water damage and physical contact are the two most likely causes of fiber release at the Site, this method does not represent a reliable method of control of fibers over the long term. Subsequent O&M would be impractical.	Fencing is adequate and reliable in restricting activities resulting in potential contact with ACM. Enclosure would likely be unreliable at the Site due to the high potential for deterioration of the enclosures. Enclosure would be inadequate in areas where other remedial efforts at the Site are required. Enclosures would be likely to interfere with many of these remedial activities. Subsequent O&M would be impractical.	Removal is an adequate and reliable method of performing ACM remediation. Removal is most compatible with other remedial efforts to be performed at the Site.
REDUCTION OF TOXICITY, MOBILITY OR VOLUME THROUGH TREATMENT					
Treatment Process Used and Materials Treated	N/A	N/A	N/A	N/A	N/A
Amount of Hazardous Material Destroyed or Treated	0	0	0	0	0
Degree of Expected Reduction of Toxicity, Mobility or Volume	None.	Mobility of ACM fibers reduced in repaired areas.	Reduction in the mobility of asbestos fibers.	Reduction in the mobility of asbestos fibers.	Near total elimination of airborne transmission of asbestos fibers.
Degree to Which Treatment is Irreversible	Fully reversible.	Repair of damaged ACM is reversible.	Irreversible	Enclosure is reversible.	Treatment is practically irreversible.
Type and Quantity of Residuals Remaining After Treatment	ACM would remain in place in original quantity.	ACM would remain in place in original quantity.	ACM would remain in place in original quantity.	ACM would remain in place in original quantity.	None
SHORT-TERM EFFECTIVENESS					
Protection of Community During Remedial Actions	Fencing will continue to restrict outside exposure to ACM.	Fencing will continue to restrict outside exposure to ACM.	Fencing restricts access to study area and contact with ACM.	Fencing restricts access to study area and contact with ACM.	Community will be restricted from access to study area. Air monitoring will be used to assess airborne migration of fibers during removal. Monitoring will not affect the community.
Protection of Workers During Remedial Actions	Appropriate protective equipment would be used during O&M.	Appropriate protective equipment would be utilized during remediation.	Appropriate protective equipment would be utilized during remediation.	Appropriate protective equipment would be utilized during remediation.	Appropriate protective equipment would be utilized during remediation.
Environmental Impacts	Minimal airborne migration of fibers from damaged ACM would continue.	Negligible.	Negligible	Negligible.	Airborne migration of fibers will be mitigated through the use of enclosures and HEPA vacuums. Appropriate equipment and personnel decontamination procedures would be used.
Time Until Remedial Action Objectives Are Achieved	Does not achieve remedial objectives.	Immediately following implementation.	Immediately following implementation.	Immediately following implementation	Immediately following implementation.

November 21, 1994

Table 11
Detailed Analysis of Remedial Alternatives
Asbestos Containing Material (ACM)
Phase I
Bossert Site, Utica NY

	Alternative 1 Implementation of an asbestos operations and maintenance program	Alternative 2 Repair	Alternative 3 Encapsulation	Alternative 4 Enclosure	Alternative 5 Removal
IMPLEMENTABILITY					
Ability to Construct and Operate the Technology	O&M is implementable. Fence locks and maintenance already implemented.	Fence locks and maintenance already implemented. Repair of damaged ACM is implementable.	Encapsulation of ACM is readily implementable. Fence locks and maintenance already implemented.	Fence locks and maintenance already implemented. Enclosure readily implementable.	Removal readily implementable.
Reliability of Technology	Fencing is reliable. O&M is not reliable for damaged ACM.	Repair of damaged ACM is a reliable technology.	Fencing is reliable. Encapsulation is unreliable for ACM damaged by water or physical contact.	Fencing is reliable for restricting access. Enclosure is reliable for inhibiting airborne fiber migration.	Removal is highly reliable for the abatement of ACM.
Ease of Undertaking Additional Remedial Actions, If Necessary	Additional remedial actions readily implemented.	Additional repair efforts readily implementable.	Additional remedial actions readily implemented.	Additional remedial actions readily implemented.	Additional removal easily undertaken, if necessary.
Ability to Monitor Effectiveness of Remedy	Visual observation during O&M would monitor effectiveness.	Visual observation during subsequent O&M would monitor effectiveness.	Visual inspection during subsequent O&M would be used to assess the effectiveness of the encapsulation.	Visual inspection of enclosures for integrity during subsequent O&M would be used to evaluate their effectiveness.	Visual inspection by licensed inspector to evaluate whether ACM was satisfactorily removed.
Coordination With Other Agencies	None necessary.	Coordination between City of Utica, NYSDEC and NYSDOH necessary to implement ACM repair.	Coordination between City of Utica, NYSDEC and NYSDOH necessary to implement encapsulation.	Coordination between City of Utica, NYSDEC and NYSDOH necessary to implement enclosure.	Coordination between City of Utica, NYSDEC and NYSDOH necessary to implement removal.
Availability of Offsite Treatment, Storage and Disposal Services and Capacities	N/A	N/A	N/A	N/A	Permitted landfill expected to be readily available.
Availability of Necessary Equipment, Specialists and Materials	Equipment, material and personnel to perform O&M expected to be readily available.	Equipment, material and personnel for ACM repair expected to be readily available.	Equipment, material and personnel for encapsulation expected to be readily available.	Equipment, material and personnel for installation of enclosures expected to be readily available.	Equipment, material and personnel for removal effort expected to be readily available.
Availability of Prospective Technologies	Readily available.	Readily available.	Readily available.	Readily available.	Readily available.
STATE ACCEPTANCE					
To be documented in the Record of Decision (ROD).					
COMMUNITY ACCEPTANCE					
To be assessed following the public comment period and documented in the ROD.					

TABLE 12 - ASBESTOS REMOVAL
BOSSERT SITE, UTICA NY
ESTIMATED COST BREAKDOWN
Note: does not include roof ACM

Description	Quantity	Units	Unit Cost	Cost
Floor Tiles	1000	sf	$2.75	$2,750
Transite Board	2000	sf	$5.50	$11,000
Plaster Pipe Insulation	2500	lf	$16.00	$40,000
Air Cell Pipe Insulation	1500	lf	$16.00	$24,000
Plaster Pipe Fitting Insulation	300	sf	$16.00	$4,800
Piping Insulation Debris	500	sf	$6.00	$3,000
Boiler Insulation	120	sf	$32.00	$3,840
De-aerator Tank Insulation	110	sf	$32.00	$3,520
Boiler Gaskets	100	lf	$2.00	$200
Subtotal - Direct Capital Costs				$93,110

TABLE 13 – AIR MONITORING
BOSSERT SITE, UTICA NY
ESTIMATED COSTS

Material	Quantity	Units	Unit Cost	Cost

Particulate Monitoring

MIE Ram 1	60	unit day	$65	$3,900
MIE Mini-	60	unit day	$31	$1,860
Operator	60	unit day	$160	$9,600

Pipe Wrap ACM Monitoring

Sampling p	90	unit day	$5	$450
Operator	30	man day	$320	$9,600
Sample an	90	ea	$10	$900

Roof ACM Monitoring

Sampling p	600	unit day	$5	$3,000
Operator	60	man day	$320	$19,200
Sample an	600	ea	$10	$6,000

Subtotal – Direct Capital Costs $54,510

TABLE 14 - PRELIMINARY COST ESTIMATE
RECOMMENDED ALTERNATIVES
BOSSERT SITE, UTICA NY
SUMMARY OF CAPITAL COSTS

Selected Building Demolition	$176,205
Asbestos Removal	$93,110
Metal Stamping Presses	$355,650
PCB Contaminated Debris	$1,600,510
Mercury Contaminated Waste	$10,000
Crates	$10,000
Treatment System	$406,825
Subtotal Capital Cost	$2,652,300

Contingency (25%)	$663,075
Engineering (15%)	$397,845
Legal (5%)	$132,615

TOTAL - CAPITAL COSTS $3,845,835

TABLE 15 - TREATMENT FACILITIES
BOSSERT SITE, UTICA NY
ESTIMATED COST BREAKDOWN

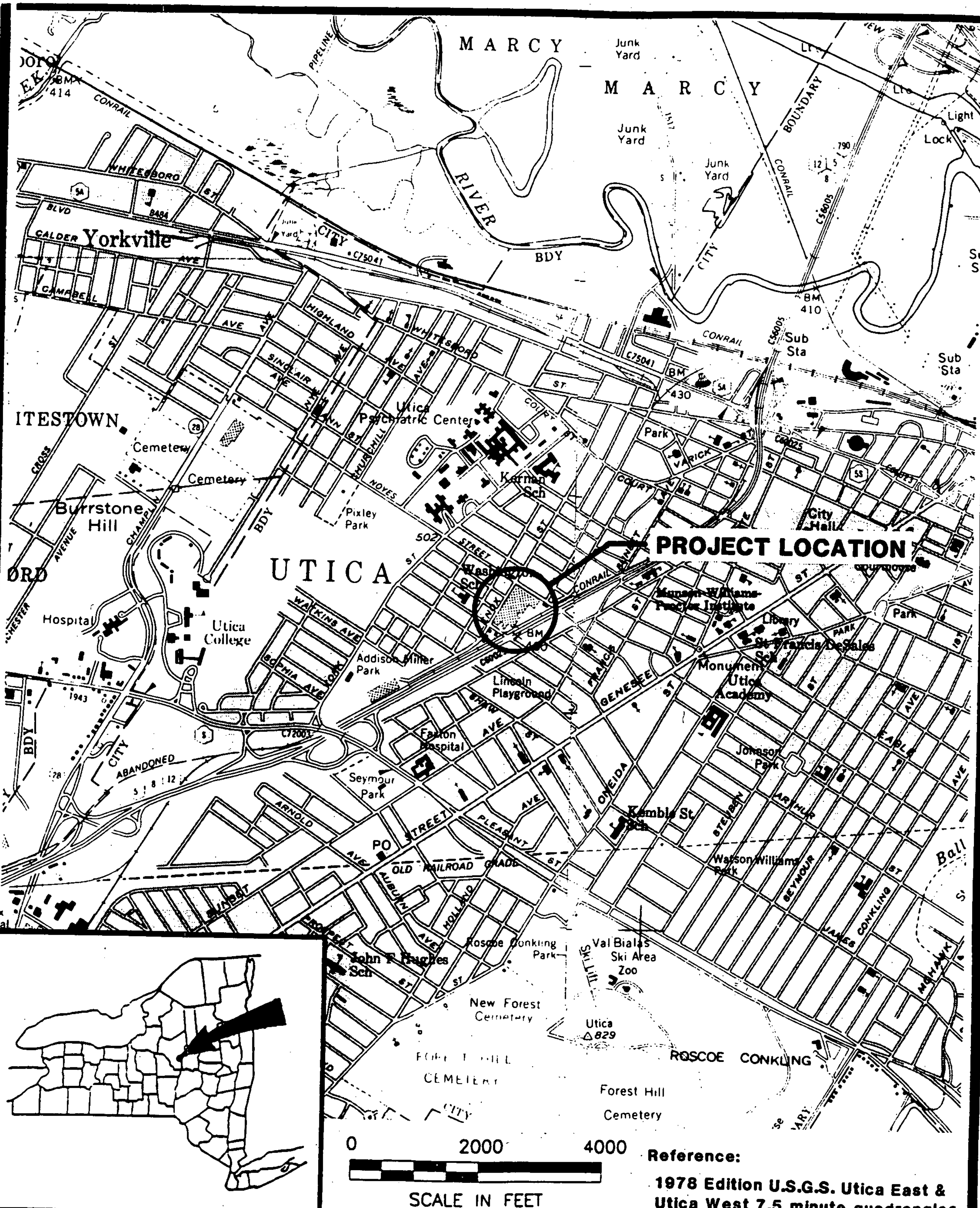
Description	Quantity	Units	Unit Cost	Cost
Treatment Facility				
Mob/demob	1	ls	$10,000	$10,000
Pumps	5	ls	$6,425	$6,425
Holding Tank	4	ls	$46,650	$46,650
Oil/Water Separator	1	ea	$2,000	$2,000
Bag Filter	2	ea	$650	$1,300
Bags	50	ea	$41	$2,050
Carbon Filter	4	ea	$700	$2,800
Piping	1000	lf	$14.30	$14,300
Sampling *	85	each	$2,000	$170,000
Instrumentation	1	ls	$1,000	$1,000
Electricity	1	ls	$1,000	$1,000
Operator	85	day	$280	$23,800
Transportation	680,000	gal	$0.05	$34,000
Treatment	680,000	gal	$0.08	$54,400
Incinerate residuals	16,500	lbs	$1.00	$16,500
Subtotal				$386,225

* Includes: Priority pollutant list

Description	Quantity	Units	Unit Cost	Cost
Truck Washing Facility				
Central Facility	1	ls	$5,000	$5,000
Washer	1	ea	$2,000	$2,000
Labor	680	hr	$20	$13,600
Subtotal				$20,600

Subtotal - Direct Capital Costs $406,825

FIGURES

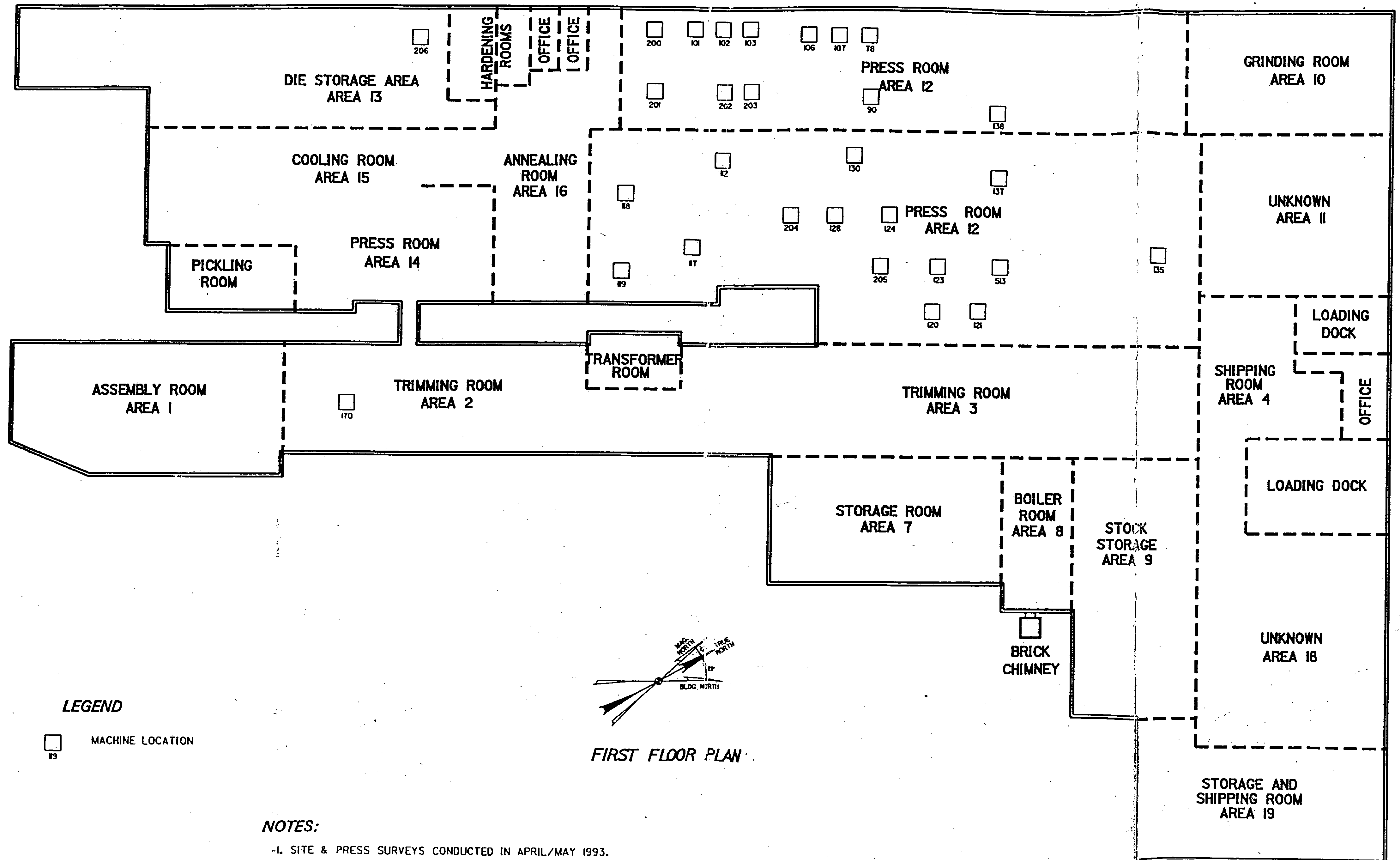


Reference:

1978 Edition U.S.G.S. Utica East & Utica West 7.5 minute quadrangles.

O'BRIEN & GERE Stetson-Harza A HARZA COMPANY	DATE DRAWN LRM NO. 6057	BOSSERT MANUFACTURING PLANT SITE (6-33-029) **GENERAL SITE MAP**	FIGURE **1**

BRUNING 73817 3726



FIRST FLOOR PLAN

LEGEND

MACHINE LOCATION

NOTES:

1. SITE & PRESS SURVEYS CONDUCTED IN APRIL/MAY 1993.

50′ 0 50′ 100′

APPROX. SCALE

BOSSERT MANUFACTURING PLANT SITE REMEDIATION

METAL STAMPING PRESS LOCATIONS

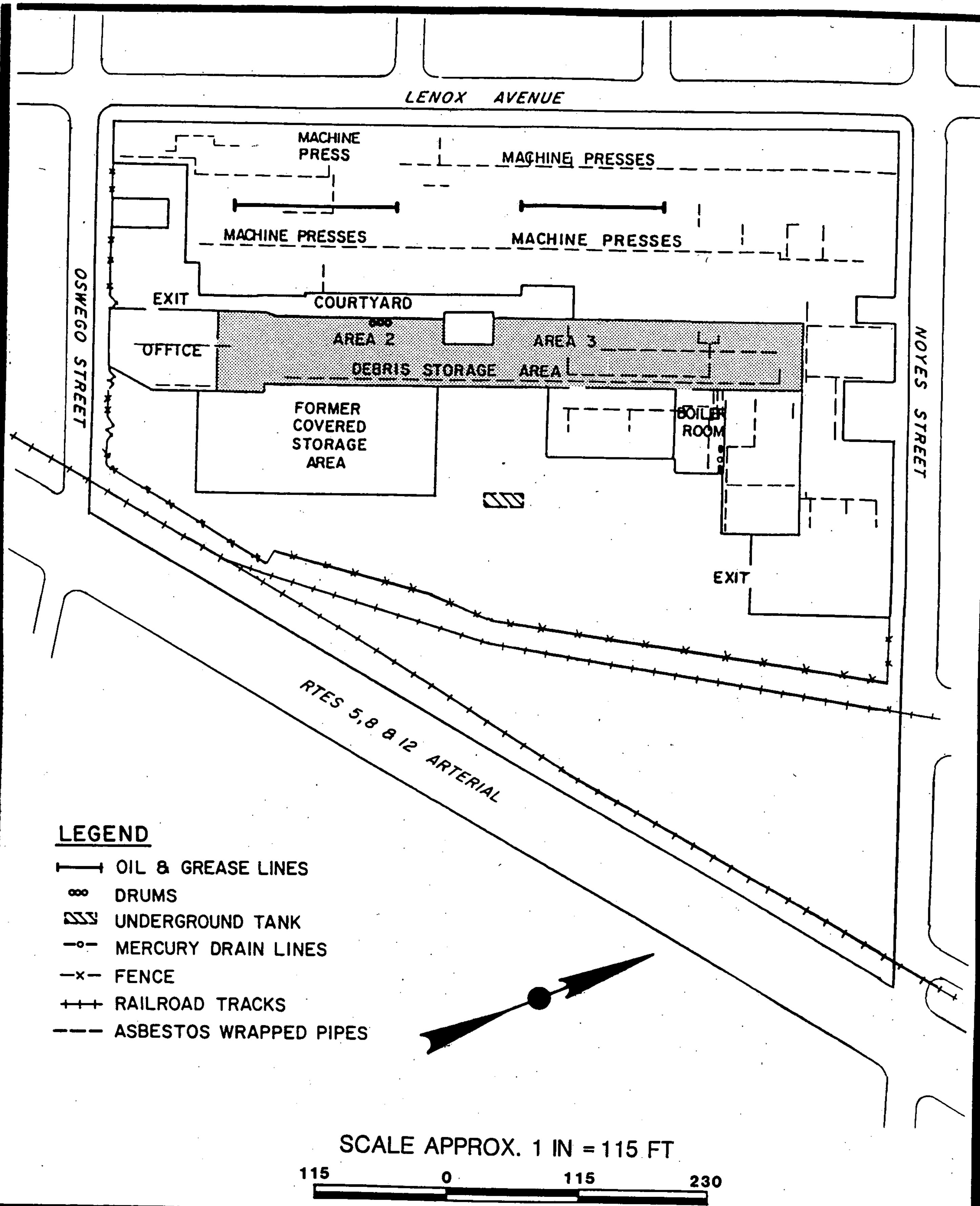
FIG. 2

DATE 6/22/94

DRAWN JC

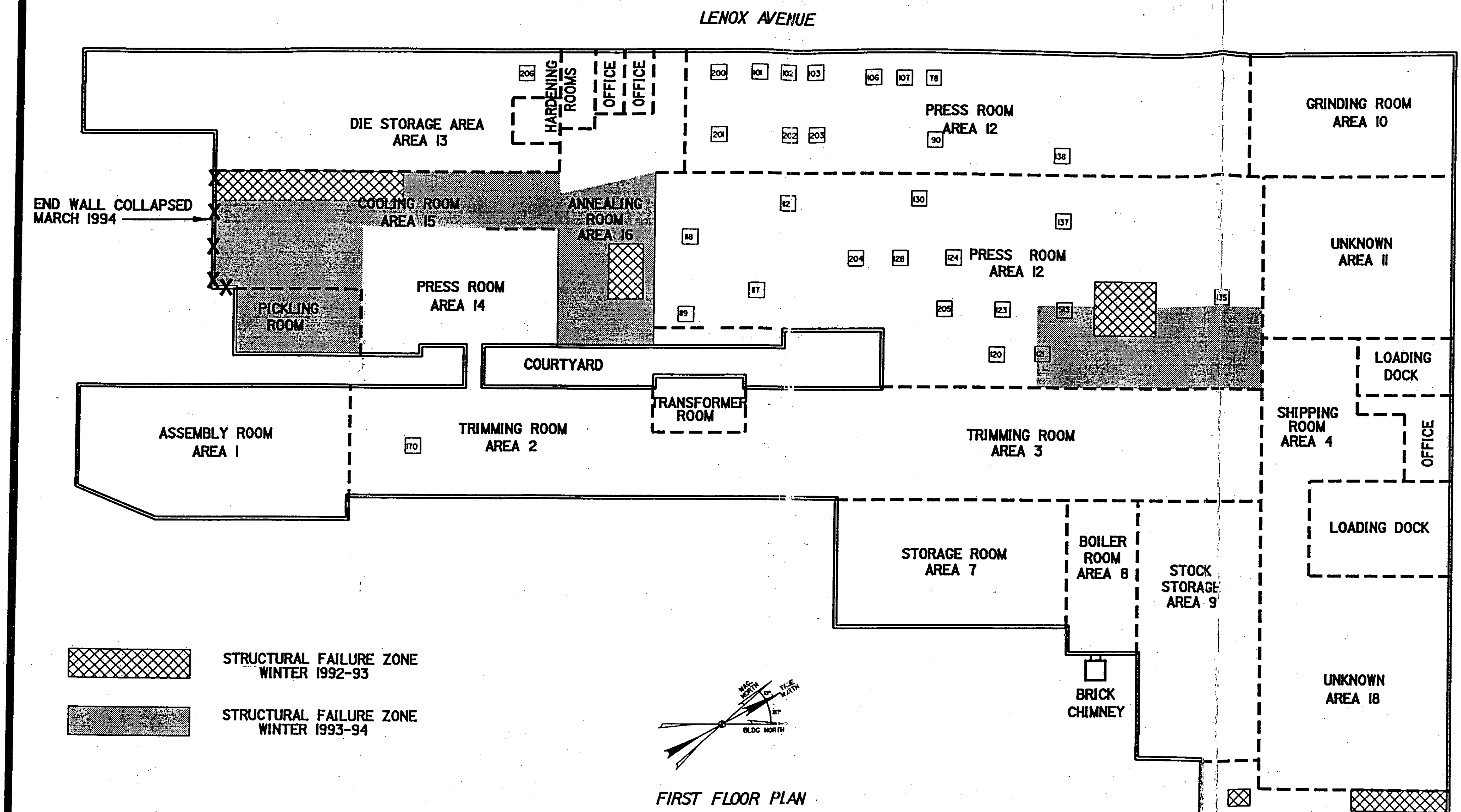
NO. 6648

Stetson-Harza
A HARZA COMPANY
181 Genesee Street, Utica, NY 13501/(315)797-5800
Rensselaer Technology Park
250 Jordan Rd., Troy, NY 12180/(518)283-8080



O'BRIEN & GERE Stetson-Harza A HARZA COMPANY	DATE	BOSSERT MANUFACTURING PLANT SITE REMEDIATION	FIGURE
	DRAWN LRM		3
	NO. 6057	SITE PLAN	

BRUNING 73817 3726



FIRST FLOOR PLAN

NOTES:

1. THE STRUCTURAL CONDITION OF THE BUILDING HAS DETERIORATED DRAMATICALLY DURING THE WINTERS OF 1992-1993 & 1993-1994. A HIGH POTENTIAL RISK OF ADDITIONAL STRUCTURAL FAILURE, DETERIORATION AND COLLAPSE EXISTS IN THE FUTURE, PARTICULARLY DURING THE WINTER.

50′ 0 50′ 100′

APPROX. SCALE

FIG. 4

BOSSERT MANUFACTURING PLANT SITE REMEDIATION

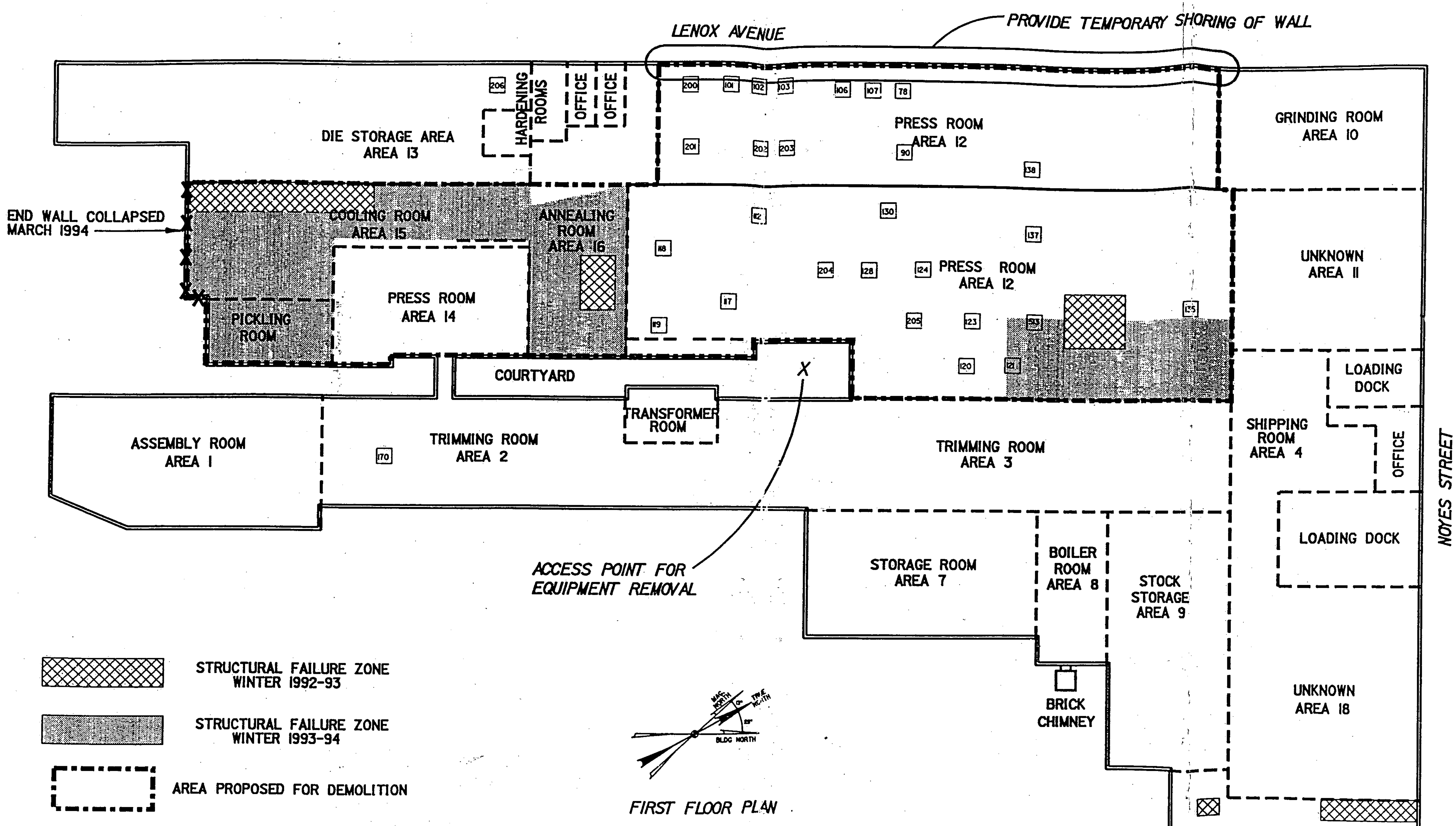
STRUCTURAL FAILURE ZONES

DATE 6/22/94

DRAWN BPH

NO. 6648

Stetson-Harza
A HARZA COMPANY
181 Genesee Street, Utica, NY 13501 (315) 797-5800
Rensselaer Technology Park
250 Jordan Rd., Troy, NY 12180 (518) 283-8080



NOTES:

1. THIS FIGURE SHOWS ALTERNATIVE NO. 1.
2. DEMOLITION IS THE REMOVAL OF PORTIONS OF THE ROOF AND/OR WALLS AND/OR PROVIDING ADDITIONAL BRACING OR SHORING AS NEEDED TO STABILIZE THE STRUCTURE AND TO ALLOW PHASE I SITE REMEDIATION ACTIVITIES TO PROCEED SAFELY.
3. AREA TO BE DEMOLISHED IS APPROX. 69,000 SQ. FT.

FIG. 5

BOSSERT MANUFACTURING PLANT SITE REMEDIATION

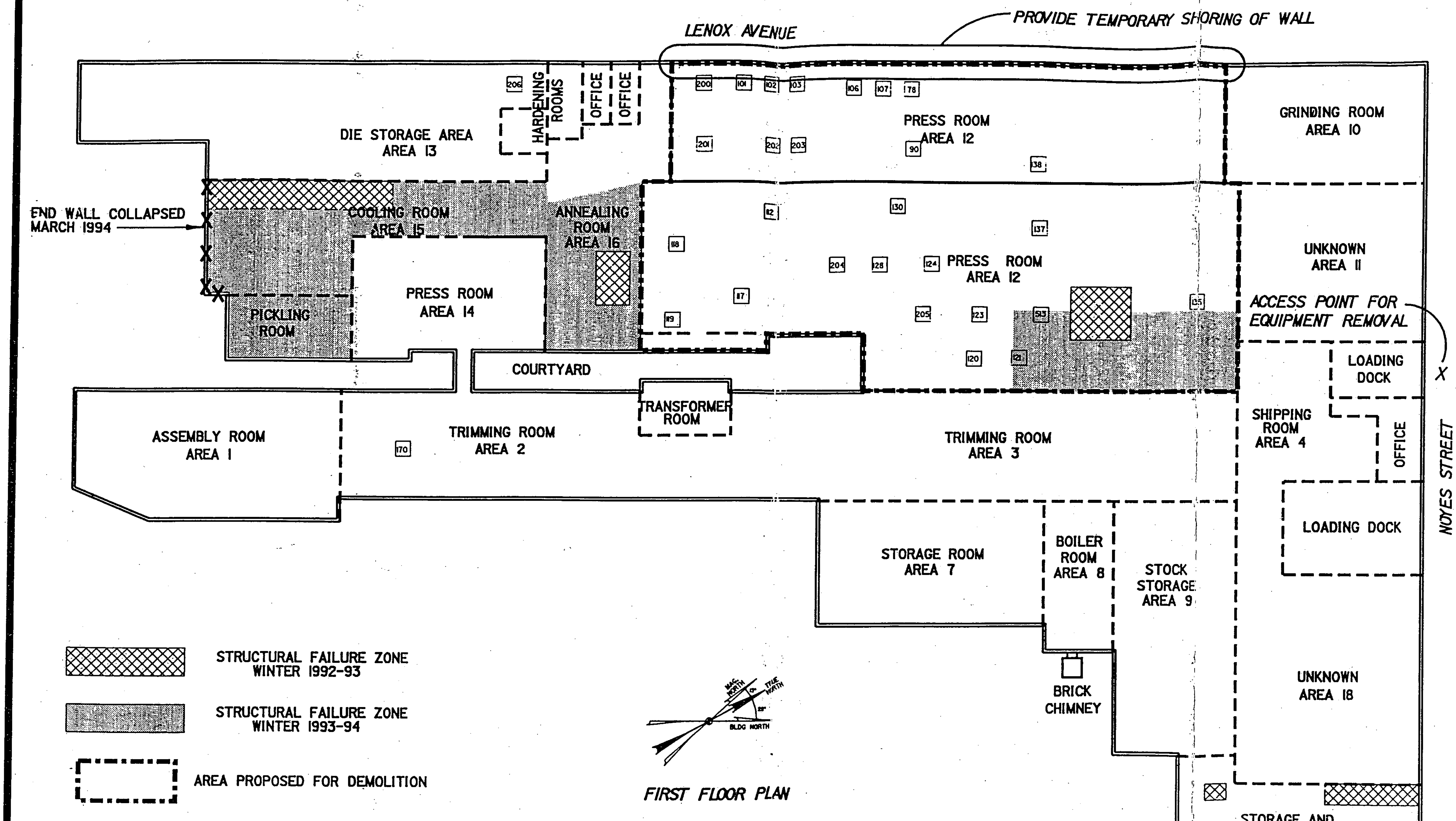
PROPOSED DEMOLITION PLAN FOR EQUIPMENT REMOVAL

DATE 6/22/94

DRAWN BPH

NO. 6648

Stetson-Harza
A HARZA COMPANY
181 Genesee Street, Utica, NY 13501/(315)797-5800
Rensselaer Technology Park
250 Jordan Rd., Troy, NY 12180/(518)283-8080



NOTES:

1. THIS FIGURE SHOWS ALTERNATIVE NO. 2.
2. DEMOLITION IS THE REMOVAL OF PORTIONS OF THE ROOF AND/OR WALLS AND/OR PROVIDING ADDITIONAL BRACING OR SHORING AS NEEDED TO STABILIZE THE STRUCTURE AND TO ALLOW PHASE I SITE REMEDIATION ACTIVITIES TO PROCEED SAFELY.
3. AREA TO BE DEMOLISHED IS APPROX. 51,000 SQ. FT.

50′ 0 50′ 100′

APPROX. SCALE

FIG. 6

BOSSERT MANUFACTURING PLANT SITE REMEDIATION

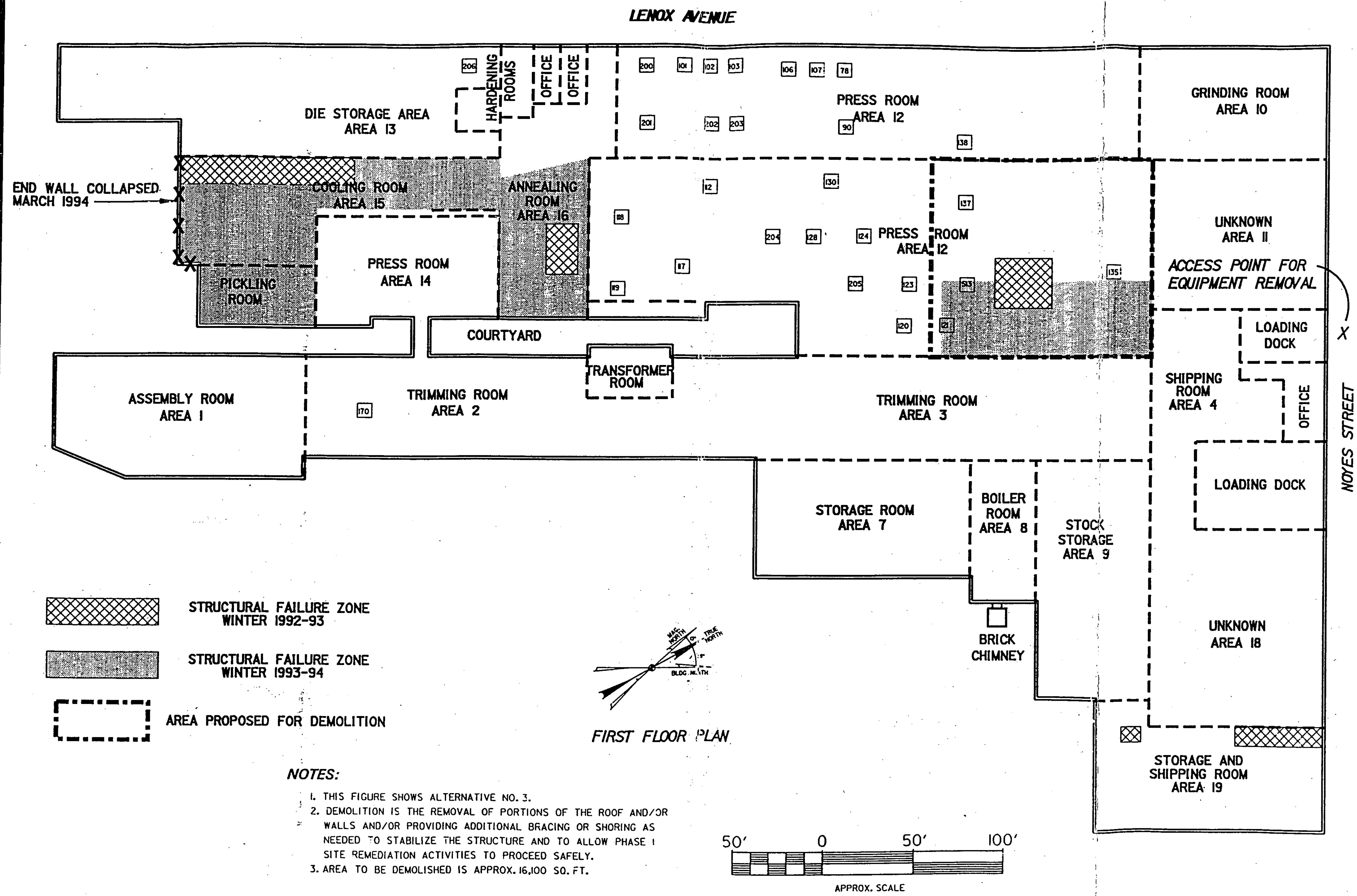
PROPOSED DEMOLITION PLAN FOR EQUIPMENT REMOVAL

DATE 6/22/94

DRAWN BPH

NO. 6648

Stetson-Harza
A HARZA COMPANY
181 Genesee Street, Utica, NY 13501/(315)797-5800
Rensselaer Technology Park
250 Jordan Rd., Troy, NY 12180/(518)283-8080



NOTES:

1. THIS FIGURE SHOWS ALTERNATIVE NO. 3.
2. DEMOLITION IS THE REMOVAL OF PORTIONS OF THE ROOF AND/OR WALLS AND/OR PROVIDING ADDITIONAL BRACING OR SHORING AS NEEDED TO STABILIZE THE STRUCTURE AND TO ALLOW PHASE I SITE REMEDIATION ACTIVITIES TO PROCEED SAFELY.
3. AREA TO BE DEMOLISHED IS APPROX. 16,100 SQ. FT.

FIG. 7

BOSSERT MANUFACTURING PLANT SITE REMEDIATION

PROPOSED DEMOLITION PLAN FOR EQUIPMENT REMOVAL

DATE 6/22/94
DRAWN BPH
NO. 6648

Stetson-Harza
A HARZA COMPANY
181 Genesee Street, Utica, NY 13501 (315) 797-5800
Rensselaer Technology Park
250 Jordan Rd., Troy, NY 12180 (518) 283-8080

APPENDIX A

SUMMARY OF SITE HISTORY

Bossert Site
Site No. 6-33-029
Activity Timeline

Dec. 1989	Order on consent entered between City and NYSDEC
June 1990	Contract entered between O'Brien & Gere Engineers and City of Utica for removal action at Bossert
April 1991	State Assistance Contract entered between City and NYSDEC
Aug. 1992	Overall project outline prepared by NYSDEC
Oct. 1992	Conducted investigation and remedial action plan prepared by O'Brien & Gere
Jan. 1993	Draft site history report submitted by O'Brien & Gere Public meeting Utica, NY
April 1993	Roof collapse observed
May 1993	Site survey including geophysical survey completed.
July 1993	Site tour with city of Utica public & Fire Dept's. Security Plan submitted to NYSDEC. Safety Plan submitted to NYSDEC. Hazardous debris observed on-site.

KET:skf/BOS.1

Bossert Site
Site No. 6-33-029
Activity Timeline

Aug. 1993

Bids for security & safety measures implementation solicited.

Security/safety measures prebid meeting held.

Sept. 1993

Field Sampling Plan submitted by O'Brien & Gere.

Petrone & Petrone retained by the City for pursuit of PRP's.

Test-pit to investigate geophysical anamoly completed.

Brush clearing around facility by City initiated.

Oct. 1993

Hazardous chemical removal performed.

Nov. 1993

Security and safety measures implemented.

Citizen Participation Plan prepared by NYSDEC.

Site tour.

Dec. 1993

Phase I Work Plan submitted by O'Brien & Gere.

Pilot demonstration project performed by OBG Technical Services.

Field Sampling Plan implemented.

July 1994

Data Validation Report submitted by Toxikon, Corp.

Roof sampling for PCBs and asbesto performed by O'Brien & Gere.

Sept. 1994

Site Investigation Report and Associated Regulatory Requirements submitted O'Brien & Gere

Nov. 1994

Analysis of Alternates Report submitted by O'Brien & Gere

KET:skf/BOS.1

APPENDIX B

LETTER FROM RAY LUPE, NYSDEC

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-7010

Langdon Marsh
Acting Commissioner

June 29, 1994

Mr. John Zegarelli, P.E.
City of Utica
One Kennedy Plaza
Utica, NY 13502

Dear Mr. Zegarelli:

RE: Bossert 6-33-029
Draft Site Characterization Report and
Draft Building Debris and Machinery
Disposal Options Report

The Draft Site Characterization Report and Draft Building Debris and Machinery Disposal Options Report submitted in May 1994 have been reviewed. The specific comments on the reports are included in Attachments 1 & 2 to this letter. The general comments on the reports are as follows:

I. <u>Bossert Site Characterization Report</u>

1. Overall the report was satisfactory and can be finalized by incorporating the comments in Attachment 1 into the report.

2. The final site Characterization Report should be submitted by July 15, 1994 pursuant to the schedule sent to you in my May 23, 1994 letter.

3. The results of the additional sampling to be conducted at the Bossert Site during July 1994 will also need to be incorporated into the Site Characterization Report. This may need to be accomplished by means of an addendum to the original report.

II. <u>Building Debris and Machinery Disposal Options Report</u>

1. It is recognized that the report was meant to be conceptual in nature. The report should now be expanded into a complete Analysis of Alternatives Report.

2. The Analysis of Alternatives Report is considered engineering. Therefore, the Report and all plans and specifications must be signed and stamped by a licensed professional engineer representing a firm certified to practice engineering in New York State.

3. Many disposal options were eliminated prematurely due solely to potential liability concerns without regard to technical feasibility and/or cost effectiveness.

4. Regulatory requirements need to be reviewed and discussed in more detail to determine options for disposal that will reduce costs and which will be in compliance with current regulatory requirements. Enclosed are the following documents which will provide some guidance on this matter:

    a) TAGM 3028 - "Contained-In" Criteria for Environmental Media, Nov. 1992

    b) Portions of 40 CFR 268.45 and an Oct. 1, 1993 letter from Mr. Nadler to Mr. T.L. Nebrich, Jr. regarding this regulation.

5. Additional comments that must be addressed to produce a satisfactory report are outlined in Attachment 2.

6. Five copies of the complete Analysis of Alternatives Report (Building Debris and Machinery Disposal Options) must be submitted by August 1, 1994 pursuant to the schedule sent to you in my May 23, 1994 letter.

I have provided a copy of these comments and regulatory documents to both Jeff Banikowski (O'Brien and Gere) and John Brady (Stetson Harza). Please direct them to address these comments within the timeframes requested.

If you have any questions, please call Jim Reagan or me directly.

Sincerely,

Raymond E. Lupe
Chief
Central Superfund Projects
Bureau of Central Remedial Action
Div. of Hazardous Waste Remediation

Enc.

cc: J. Banikowski - w/enc.
J. Brady - w/enc.
L. Petrone
R. Griffiths

Attachment 1

Comments on Bossert Site
Draft Characterization Study
May 1994

General: Overall the report is satisfactory and can be finalized with minimal efforts.

1. Page 14, Section 4.1 - The significance of decontamination to 10 ug/100 cm^2 needs to be discussed relative to health significance and cleanup guidance for reuse. For example, if the presses were decontaminated to less than 10 ug/100 cm^2 could they possibly be left in place or what cleanup level allows unrestricted salvage?

2. The Remedial Objectives should be identified as preliminary and subject to refinement in the Building Debris and Machine Disposal Options Report. A statement to that effect should be included in the first paragraph of Section 5.2. The heading of 5.2 should also be Preliminary Remedial Objectives.

3. Page 21, Remedial Objectives - All remedial objectives need to include the concept of cost effectiveness.

4. Page 22 - The last remedial objective must be modified to read: "Minimize through selective building demolition or bracing, the physical hazards presented by the structure which must be addressed to conduct the Phase 1 remedial actions safely".

5. The Remedial Objectives and section 4.1.6 need to identify why asbestos is of concern. Removal of asbestos is a non-eligible Title 3 cost unless it is needed to conduct the removal of the other debris or machinery safely due to the friable nature of the asbestos or to avoid spreading asbestos contamination during remediation.

6. References - A copy of the USEPA, 1993 Letter, Ernest Regna to Kyle Thomas must be included in the appendices.

<u>Attachment 2</u>

Comments on Bossert Site
Draft Report, Building Debris and Machine Disposal Options
May 1, 1994

1. The report is a conceptual outline of the preliminary screening and needs to be expanded to include:

   - Chapter 1 - Review of regulatory requirements including "Contained In" rule; limitations and decontamination requirements for reuse or disposal as non-hazardous waste; location of landfills that could be used to dispose of materials as non-hazardous waste (in state or out of state).
   - Chapter 2 - Refinement of Remedial Objectives, breakdown of quantities of various types of materials to be handled, criteria that must be met.
   - Chapter 3 - Identification and Preliminary Screening of Alternatives.
   - Chapter 4 - Detailed Technical and Feasibility Evaluation and Cost Effectiveness Analysis.
   - Chapter 5 - Recommended Course of Action.
   - Chapter 6 - Conceptual Design and Preliminary Cost Estimate.

2. The number of machine disposal options could be greatly streamlined by first screening in-place; off-site; and on-site (central) decontamination options.

3. An alternative that identifies decontamination in-place to less than 10 ug/100 cm^2 of PCBs and leaving the presses in the building should be included in the assessment.

4. Several alternatives involving reuse were prematurely eliminated based on potential liability presenting unacceptable risks. This is not cost effective and would be unwarranted if the presses are decontaminated. Various levels of decontamination would allow reuse and/or disposal as non-PCB wastes in compliance with applicable or appropriate regulations and must be carried into the detailed evaluation and cost effectiveness analysis.

5. Many of the entries in Table 1 are unclear or are considered incorrectly. The table needs to be revised.

6. Table Number 2, Building Debris disposal options does not adequately consider such things as the cost of unnecessarily disposing of non-hazardous/PCB waste in a hazardous waste landfill. The potential to segregate wood based on visual staining and the potential to separate and decontaminate the metal should be evaluated. This table needs to be revised to consider such options.

7. The listing of landfills that would accept the wastes and firms that could salvage the machines is useful for costing purposes. However, the recommended method of removal must consider the regulatory requirements which must be met and the cost effectiveness of the options. For example, are all the landfills, interested in accepting the low level PCB contaminated wastes, properly permitted to receive these wastes? Normally, the contractor is required to provide proof the facilities used for disposal are properly permitted to receive the wastes.

8. The detailed screening for both the machines and debris should include an assessment of the volumes of materials to be handled, costs of decontamination and problems of handling decontamination residuals, practicality and cost effectiveness of performing the work, and implications of cost of disposing of all the materials in a hazardous waste landfill. In addition, potential limitations on the size of debris that may be disposed should be evaluated.

APPENDIX C

PERSONNEL COMMUNICATION WITH DAVID GREENLAW, USEPA

To: File
From: Jeff Banikowski
Re: Phone conversation with Mr. David Greenlaw, U.S.EPA Region 2
File: 450.046
Date: July 18, 1994

cc: Scott Braymer

On July 12, 1994, this writer held a phone conversation with Mr. Greenlaw, U.S.EPA Region 2, PCB Program Coordinator. The purpose of the phone conversation was to discuss U.S.EPA's position relative to remediation of the Bossert facility. It should be noted that Mr. Greenlaw was familiar with the site and indicated that he had conversed with Mr. Kyle Thomas (O'Brien & Gere Engineers, Inc.) on several occasions. Mr. Greenlaw offered the following information:

- The PCB hydraulic machines contained within the Bossert facility are subject to regulations under 40 CFR Part 761.60, subpart D. These regulations indicate that, if the hydraulic oil contained within the machines is less than 1000 ppm PCBs, then the only requirement for disposal of the machines (i.e. disposal of as a municipal solid waste or salvage) is that the oil be drained from the hydraulic reservoir. In the event that the hydraulic oil contained in the reservoir is greater than 1000 ppm PCBs, the hydraulic machine would require flushing with a solvent prior to disposal. In this case, Mr. Greenlaw noted that it was likely that the solvent would be regulated as a hazardous waste under 40 CFR Part 261 and applicable state regulations. (A copy of 40 CFR Part 761.60, subpart D and its 6 NYCRR counterpart is attached).

- Mr. Greenlaw indicated that, although the regulations would not require exterior cleaning of the machines under the scenario provided above, his agency would not be receptive to removal of the machines without a gross exterior cleaning to remove grease and accumulated oils. He further indicated that no testing of the exterior would be necessary to evaluate the exterior cleanliness of the machines, only visual observations that the machines were (relatively) clean.

- Mr. Greenlaw stated that 40 CFR 1761.60, subpart D requires removal of the machines off-site; it does not authorize the machines to be left in place. Mr. Greenlaw indicated that a satisfactory level of cleanliness for leaving the machine on-site would be 10 ug/100 cm^2, as provided in 40 CFR Part 761 (PCB Spill Clean-up Policy). However, Mr. Greenlaw stated that he had reservations about attempting to clean the metal stamping presses at Bossert to this level without taking them apart to permit a thorough cleaning of hard to reach parts.

- Mr. Greenlaw noted that BIF regulations may affect the selection of smelters who could reclaim the presses and suggested that we contact Mr. John Brogard (U.S.EPA) to discuss specific air discharge regulations governing reclamation of the presses by smelting.

APPENDIX D

PERSONNEL COMMUNICATION WITH JOHN MICCOLI, NYSDEC

To: File
From: Jeff Banikowski
Re: Phone conversations with Bill Yeomans and John Miccoli, NYSDEC RCRA Program
File: 450.046
Date: July 18, 1994

cc: Scott Braymer
Kyle Thomas

On Monday, July 11, 1994, this writer and Scott Braymer held a phone conversation with Bill Yeomans and John Miccoli, NYSDEC. The purpose of the phone conference (initiated by this writer at the direction of Ray Lupe, NYSDEC Project Supervisor) was to obtain information from NYSDEC relative to the application of 6 NYCRR Parts 370-376 to Phase 1 of the Bossert Site clean-up. During the conversation, Mr. Yeomans and Mr. Miccoli offered the following information:

- The PCB waste streams at Bossert would be classified as either B002 waste or B007 waste. Specifically, the debris in areas 2 and 3 is a B007 waste, while hydraulic oil exceeding 50 ppm PCBs is a B002 waste for disposal purposes.

- Mr. Miccoli emphasized the notification, certification requirements needed to comply with the treatment, shipment, and disposal of PCBs as a state listed hazardous waste. Mr. Miccoli indicated that the City would act as generator of the material and that the waste would be manifested under 6 NYCRR 372.2.

- Mr. Miccoli indicated that U.S.EPA 40 CFR Part 761 carries the burden for waste exiting regulatory requirements in that the U.S.EPA would need to provide an opinion as to remedial alternatives at the Bossert Site for disposal of PCB containing waste materials. He indicated that if TSCA agrees with the NYSDEC as to the disposal of the material in question, that the regulations would be sufficiently satisfied.

- Mr. Miccoli indicated that he would like his office to receive a copy of a summary report providing our recommended approach for Phase 1 remediation at Bossert prior to finalization of the FS. He indicated that correspondence should be sent to Larry Naddler, Section Chief.

- Mr. Miccoli indicated that, in the event that the metal stamping presses were decontaminated using a solvent or detergent wash, that the filter used in cleaning the waste would likely concentrate PCBs to the extent that they would be regulated as a hazardous waste.

Both Mr. Yeomans and Mr. Miccoli indicated that they would be receptive to further conversations if the need arose during development of the FS. Each individual was quite helpful in explaining NYSDEC's position relative to PCB waste streams.

APPENDIX E

LETTER FROM ERNEST REGNA, USEPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

RECEIVED
AUG 12 1993

August 6, 1993

Kyle F Thomas, Scientist
O'Brien & Gere Engineers, Inc.
P.O. Box 4873
5000 Brittonfield Parkway
Syracuse, New York 13221

Dear Mr. Thomas:

In your letter of February 19, 1993 to Mr. Daniel Kraft you requested that EPA review issues pertaining to the cleanup and disposal of PCB contaminated materials at the Bossert Site in Utica New York. The Bossert Site was the subject of a CERCLA emergency response by USEPA Region II. When the emergency removal action was complete there remained two stockpiles of potentially PCB contaminated materials in addition to potentially contaminated equipment, buildings and appurtenances. The city of Utica, New York now owns the property and your firm is performing an investigation and remedial design to address the remaining contamination on the property. We have reviewed the information you provided and provide the following conclusions:

1. Based on the nature of the materials and the history of the site (specifically USEPA's activities under CERCLA) materials may be segregated for disposal based on their actual PCB concentration. (PCBs may not be diluted by the City of Utica or its agents to avoid a concentration based requirement other than as provided in the PCB regulations for activities such as cleanup of surfaces and decontamination. This is the same restriction as applies to CERCLA activities under the Superfund PCB Policy)

2. Sampling of debris is to determine if "hot spots" with PCB concentrations greater than 50 ppm are in each portion of debris. You have indicated that debris will be sorted by type and visible contamination. Once sorted, the debris will be sampled to characterize it for disposal. The debris should be delineated into batches with at least one sample per batch. The maximum batch size is twenty cubic yards. If any sample from a batch is over 50 ppm PCBs then the batch would be handled as being over 50 ppm PCBs.

Debris with impervious surfaces must be disposed as a PCB waste if it is contaminated with PCBs at more than 100 $\mu g/100\ cm^2$ as measured by standard wipe tests. This type of debris may be decontaminated as an alternative to disposal as a PCB waste.

3. As Mr. Greenlaw of my staff has mentioned, non-PCB disposal facilities may limit the level of PCB contamination they will accept to significantly less then 50 ppm. Also, many disposal facilities (PCB and non-PCB) have their own sampling plan requirements. For these reasons it may be important to have input from the disposal facilities early to avoid conflicts with their criteria. We do not have specific information on these disposal requirements.

4. The proposed cleanup level of 10 ppm PCBs for soils and concrete slab foundations to be left on the site is appropriate based on EPA's requirements.

5. Building interiors should be cleaned up to the standards in the PCB Spill Cleanup Policy (Spill Policy), Subpart G of 40 C.F.R. Part 761. Surface based cleanup criteria may be applied to concrete and other porous materials provided the material is also sampled in some locations, usually where contamination is/was the greatest, to demonstrate that by cleaning the surface the PCB contamination has been substantially addressed. If normal cleanup procedures cannot achieve the standards in the Spill Policy we will be happy to discuss alternatives.

6. Equipment cleaned to 10 $\mu g/100\ cm^2$ is unrestricted by the PCB regulations. Equipment cleaned to 100 $\mu g/100\ cm^2$ may be disposed as a non-PCB waste. Disposed means that this equipment would be smelted, shredded or otherwise destroyed. Disposed does not include reused as parts.

We hope the above discussion address the issues raised in your letter. We will be ready to assist you in clarifying any issue related to the PCB regulations that arises in the course of this remediation. Formal EPA approval is not required to implement this PCB remediation. If you need any further assistance you may call Mr. David Greenlaw at (908) 906-6817

Sincerely,

Ernest A. Regna

Ernest A. Regna, Chief
Pesticides and Toxic Substances Branch

APPENDIX F

LETTER FROM JIM REAGAN, NYSDEC

New York State Department of Environmental Conservation
`0 Wolf Road, Albany, New York 12233-7010

Langdon Marsh
Commissioner

October 18, 1994

Mr. David Greenlaw MS-105
PCB Program Coordinator
U.S. EPA Region II
2890 Woodbridge Avenue
Edison, NJ 08837-3679

Dear Mr. Greenlaw:

RE: City of Utica, New York - Title 3 Project; NYSDEC Region 6, Oneida County; Bossert Manufacturing - Phase I Remediation, Site Code: 6-33-029

Thank you for taking the time to discuss certain PCB/TSCA requirements with respect to the above-referenced Bossert Title 3 Project with me previously on September 27, 1994 by telephone.

As you are already aware, there have been a number of previous discussions related to this site between U.S. EPA Region II staff (including yourself) and staff at O'Brien and Gere Engineers Inc. (Syracuse, New York) the City of Utica's primary engineering consultant for the Bossert Project, in particular, Jeffrey Banikowski and Kyle Thomas (other staff may have been included also). Many questions regarding TSCA (PCB) requirements were answered during the past several months by these previous discussions.

At this time, we are in the process of reviewing the Phase I Draft Analysis of Remedial Alternatives Report (August 1994) for the Bossert Site. Some additional questions have arisen during this review process regarding PCB/TSCA issues related to proposed Phase I Remedial Alternatives #3 and #4 for the 28 large hydraulic and mechanical metal stamping presses remaining at the Bossert Site.

Alternative #3 involves "external cleaning, draining, disassembly, and transport to a scrap yard for recycling." Alternative #4 is similar to Alternative #3 except that the final step involves "transport to a smelter" or steel mill for direct remelt/recycling.

My question regarding proposed Alternatives #3 and #4 was basically two-part as follows:

a. What degree of disassembly of these 28 large metal stamping presses will be required prior to shipping the presses and/or components off-site for remelt/recycling to a metal scrapyard or (directly) to a smelter, steel mill or foundry? and

b. What TSCA requirements must be met by this material (press parts, components or assemblies) prior to shipment to a scrapyard or smelter?

For parts "a and b" my understanding of the applicable regulatory requirements and guidelines based upon our earlier discussions is as follows: As has been previously indicated, the primary regulatory requirement is to drain the hydraulic machines (presses) of all free flowing liquids (hydraulic oils or fluids). Machinery containing hydraulic fluids which contain more than 1000 ppm PCBs; after being drained, must then be rinsed or flushed with a fluid which is a solvent for PCBs and which initially contains < 50 ppm PCBs. This used or spent solvent must also be treated as a PCB waste under TSCA. Also, per TSCA requirements, all liquids which contain PCBs at concentrations of 500 ppm or above must be disposed of by incineration. Liquids containing PCB concentrations between 50 ppm and 500 ppm must be disposed of per TSCA requirements. Strictly speaking, these are the primary regulatory requirements which would apply to the disposal of these hydraulic machines by recycling as scrap metal.

Recent Phase I Investigation conducted at the Bossert Site during December 1993 indicates that very minimal amounts of hydraulic oils or fluid remain at the Bossert Site at this time and that these small amounts of fluid generally contain significantly less than 500 ppm total PCBs. The small quantities of residual hydraulic fluids which may remain within the metal stamping presses can likely be bulked together for final analysis and disposal during Phase I Remedial Construction. Large quantities (several thousand gallons) of PCB contaminated hydraulic oils or fluids (some at concentrations above 500 ppm PCBs) were removed from the Bossert Site for proper off-site disposal during the prior USEPA Emergency Response Action conducted during 1986 and 1987.

Because of the size, weight, location and configuration of these large metal stamping presses; as a practical matter, some disassembly or dismantling of these large presses will be required before they can be transported off-site and scrapped or recycled. Complete and total disassembly of the presses does not appear to be required. However, the USEPA strongly recommends a relatively thorough gross decontamination of the press components, prior to their shipment off-site for remelt as scrap. To ensure that an effective and complete gross PCB decontamination is achieved for these press component parts, a fairly complete disassembly of the presses will be required. This will also be necessary to ensure that no free flowing PCB liquids remain trapped inside the presses or their component parts (including any liquids which might be retained inside by chance or accident). Although not necessarily a regulatory requirement, some periodic random wipe testing of the component parts following decontamination is strongly recommended, to evaluate the effectiveness of the decontamination process. A generalized goal of the gross decontamination would be to achieve a PCB surface contamination level of $\leq$ 100 ug/100 cm^2 following gross decontamination. The decontamination process should be tuned or adjusted to meet this general goal level, if feasible and possible. If it is not feasible or possible to reach this maximum PCB surface contamination level following the gross decontamination process, then this information (remaining PCB surface contamination levels) should be noted on the shipping manifests for the press component parts.

The issue of whether or not a scrapyard or smelter located outside of the United States could be used for recycling of the press components was also briefly discussed. From a regulatory standpoint, it is preferable if these facilities are located within the United States. Hydraulic machines which contained fluids with PCB concentrations of $\leq$ 50 ppm could be shipped outside of the United States for final disposal/recycling.

As a practical matter, mechanical disassembly of the presses will be preferred, if possible (primarily to ensure a complete and thorough gross decontamination of the component parts and a complete draining of all hydraulic oils or fluids). However, if necessary, the use of torches or cutting equipment would also be allowed.

It may also be desirable to recycle scrap metals (if practical) which are currently mixed-in with several thousand cubic yards of other PCB contaminated debris in the vault area (rooms 2 and 3) at the Bossert Site. If it is feasible and practical to recover scrap metal from the general mix of debris, then these separated metals would require a gross decontamination process prior to being shipped off-site for remelt/recycling. Again, although not necessarily a regulatory requirement, a general goal or guideline for the decontamination would be a surface PCB contamination level of $\leq$ 100 ug/100 cm^2 following the gross decontamination process.

If my understanding of these issues is not correct, please let me know as soon as possible at tel. (518) 457-5677. Again, thank you for taking the time to discuss TSCA/PCB issues related to the Bossert Site remediation with me.

Sincerely,

Jim Reagan

Jim Reagan
Environmental Engineer 2
Central Superfund Projects
Bureau of Central Remedial Action
Div. of Hazardous Waste Remediation

cc: R. Griffiths - NYSDOH
J. Zegarelli - City of Utica
J. Banikowski - OB&G
K. Thomas - OB&G
J. Brady - SH
L. Petrone - Petrone & Petrone